

AD-A109 992

NAVAL ACADEMY ANNAPOLIS MD

F/6 5/3

THE THIRD WORLD ARMS MARKET IN THE 1980'S: IMPLICATIONS FOR U. --ETC(U)

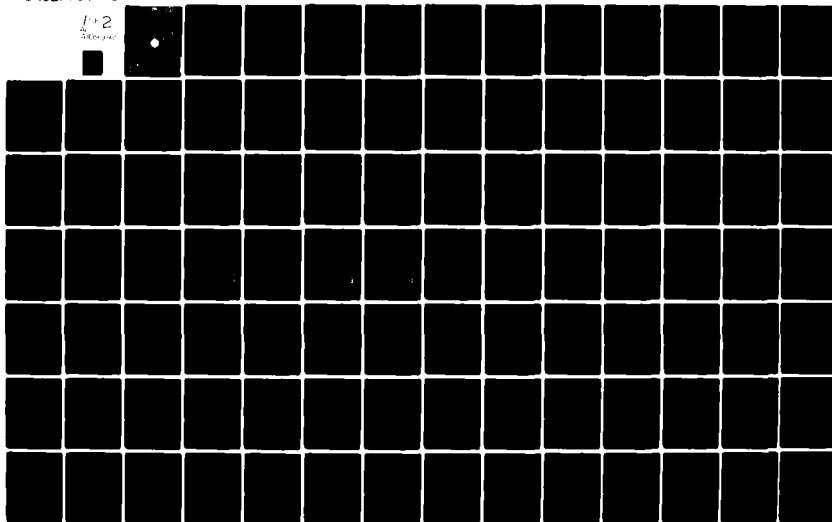
JUN 81 E B REX

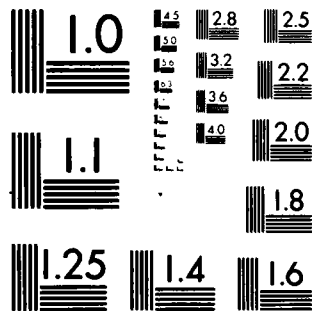
UNCLASSIFIED

USNA-TSPR-114

NL

1-2
2000-000





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

AD A109992

LEVEL

A TRIDENT SCHOLAR
PROJECT REPORT

NO. 114

THE THIRD WORLD ARMS MARKET IN THE 1980s:
IMPLICATIONS FOR U. S. POLICY



DTIC
SELECTED
JAN 25 1982
H

UNITED STATES NAVAL ACADEMY
ANNAPOLIS, MARYLAND
1981

DTIC FILE COPY

This document has been approved for public
release and sale; its distribution is unlimited.

01 15 82 092

245600

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER U.S.N.A. - TSPR no. 114 (1981)	2. GOVT ACCESSION NO. AD-A109 992	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) THE THIRD WORLD ARMS MARKET IN THE 1980s: Implications for U. S. Policy.		5. TYPE OF REPORT & PERIOD COVERED Final: 1980/1981
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Eugene Braiden Rex		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS United States Naval Academy, Annapolis.		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS United States Naval Academy, Annapolis.		12. REPORT DATE 2 June 1981
		13. NUMBER OF PAGES 178
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) This document has been approved for public release; its distribution is UNLIMITED.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) This document has been approved for public release; its distribution is UNLIMITED.		
18. SUPPLEMENTARY NOTES Accepted by the U. S. Trident Scholar Committee.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Military assistance Underdeveloped areas Munitions		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This paper analyzes the demand and supply sides of the Third World arms market. The relationship between arms imports and six economic variables is studied, with emphasis on the use of economic variables to forecast arms demand. Arms imports are found to be systematically related to economic variables in a number of the countries studied. Arms demand is significantly correlated with GNP in thirty of the forty countries. Based upon this correlation, forecasts of arms demand are made using estimates of the (OVER)		

DD FORM 1473
1 JAN 73EDITION OF 1 NOV 68 IS OBSOLETE
S/N 0102-LF-014-6601

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

U.S.N.A. - Trident Scholar project report; no. 114 (1981)

The Third World Arms Market in the 1980s:
Implications for U.S. Policy

A Trident Scholar Project Report

By

Eugene Braiden Rex, '81
Midshipman, First Class

U.S. Naval Academy
Annapolis, Maryland

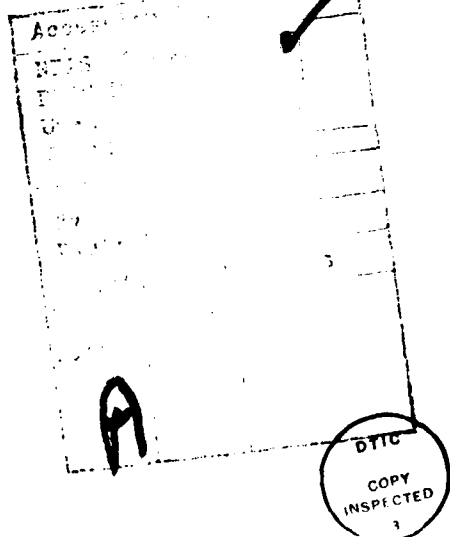
Arthur Gibb, Jr.

Associate Professor Arthur Gibb, Jr.
Economics Department

Accepted for Trident Scholar Committee

Arthur Gibb, Jr.
Chairman

2 June 1981
Date



ABSTRACT

This paper analyzes the demand and supply sides of the Third World arms market. The relationship between arms imports and six economic variables is studied, with emphasis on the use of economic variables to forecast arms demand. Arms imports are found to be systematically related to economic variables in a number of the countries studied. Arms demand is significantly correlated with GNP in thirty of the forty countries. Based upon this correlation, forecasts of arms demand are made using estimates of future GNP levels. These estimates show that Africa and the Middle East will be the largest arms demanding regions in the next decade.

On the supply side, U.S. market share and the share of major supplying nations to the Third World are analyzed. During the period 1965 to 1978, U.S. share is found to have declined significantly, particularly in Africa and Latin America. Soviet and European shares have increased in most regions. Market share trends combined with demand projections indicate that U.S. policy toward Africa and Latin America will be of importance in the future. ↗

Current U.S. arms policy is reviewed, with emphasis on the effect of this policy on arms transfers to Africa and

E.B. Rex

The Third World Arms Market

Latin America. The relationship between U.S. military assistance and market share is also analyzed. Arms credits are found to be concentrated in two regions, East Asia and the Middle East, and in two countries, the Republic of Korea and Israel.

The paper ends with a reiteration of major conclusions and comments on the U.S. policy implication of these conclusions.

TABLE OF CONTENTS

	Page
LIST OF TABLES.	4
LIST OF FIGURES	5
LIST OF APPENDICES.	6
Chapter	
I. THE THIRD WORLD ARMS MARKET	
Introduction.	7
Background.	10
Review of the Literature.	14
Major Assumptions	24
II. THIRD WORLD DEMAND FOR ARMS	
Introduction.	28
Methodology/Results	29
Data Base.	30
Selection of Variables	34
Representative Countries	37
Analysis/Interpretation.	38
Arms Import Demand Projection: 1980-1990 .	50
III. THE SUPPLY OF ARMS TO THE THIRD WORLD	
Introduction.	65
Background.	66
The Nature of Arms Industries.	66
Government Influences on Arms Transfers. .	68
The Market Position of the United States in the Third World.	76
United States Arms Transfer Policy.	86
U.S. Military Assistance and U.S. Market Share.	100
IV. CONCLUSIONS	105
NOTES	108
BIBLIOGRAPHY.	113
APPENDICES.	116

LIST OF TABLES

Table	Page
1. Representative Third World Countries.	39
2. Regression Results: Arms Imports versus Gross National Product.	47
3. Arms Demand Projection Method: Selected Third World Countries	52
4. Country Arms Import Projections	55
5. Regional Arms Imports as a Percentage of Third World Arms Imports: 1965-1990	64
6. Third World Arms Import Market Share.	78
7. Supplier Market Share in the Third World.	79
8. Regional Arms Import Demand: 1965-1990.	81
9. Country Market Share Changes: 1965-1978	83
10. U.S. Market Share and U.S. Arms Financing By Region: 1972-1978.	102

LIST OF FIGURES

Figure	Page
1. Arms Imports versus Gross National Product. . .	41
a. Africa.	41
b. East Asia	42
c. Latin America	43
d. Middle East	44
e. South Asia.	45
2. U.S. Grant Aid and Arms Financing: 1955-1978. .	91
3. Foreign Military Sale Financing	94

LIST OF APPENDICES

	Page
1. Country Rankings.	116
2. Arms Imports versus Gross National Product per capita:	
a. Africa	118
b. East Asia.	119
c. Latin America	120
d. Middle East	121
e. South Asia	122
3. Arms Imports versus Total Exports:	
a. Africa	123
b. East Asia.	124
c. Latin America.	125
d. Middle East.	126
e. South Asia	127
4. Regression Results: Arms Imports versus:	
a. Gross National Product per capita.	128
b. Total Exports.	130
c. Total Exports per capita	132
d. Military Expenditures.	134
e. Military Expenditures per Member of the Armed Forces	136
5. Multiple Regression Methodology/Results	138
6. Arms Import Demand Pooled Regression Data:	
Arms Imports versus GNP.	142
7. Major Supplies Market Share in Selected Third World Nations: 1965-1978	143
8. Arms Export Control Act Restrictions on United States Arms Transfers.	153
9. Conventional Arms Transfer Policy Statement by the President.	155
10. Statement by the President, February 1, 1978.	160
11. U.S. Military Assistance and U.S. Market Share: 1972-1978.	163

CHAPTER ONE: THE THIRD WORLD ARMS MARKET

Introduction

In 1978, over 16.5 billion dollars worth of arms were delivered to the countries of the Third World.¹ The types of equipment supplied varied from rifles, canteens, and c-rations to submarines, surface-to-surface missiles, gas turbine frigates, and supersonic aircraft with "fire and forget" missiles. In some countries, petrodollar surpluses were expended in purchasing the latest defensive and offensive weapons. In others, loans and grants were used to purchase the weapons which bought partial security against neighbors' machinations. Six major developed countries supplied most of the arms procured, while seven developing countries exported arms, some for the first time, to their Third World neighbors.

The past decade has brought major changes to both the demand and the supply side of the Third World arms market. As more countries have purchased larger quantities of higher quality weapons, the expenditure for arms (as measured in dollar terms) has increased dramatically. The amount of money spent on arms delivered to the Third World increased

over four-fold between 1968 and 1978.² In addition, the percent of the World arms market accounted for by Third World deliveries has increased from about two-thirds to over eighty percent, again in just a ten year period.³

On the supply side, the market shares of the countries which supply arms to the Third World have also changed. Immediately following World War II, the U.S. had virtually a one hundred percent market share in the Third World . Since that time, U.S. market share has steadily declined, due to gains made by the U.S.S.R., France, U.K., and West Germany.

The U.S. share in the Third World has important implications for the U.S. balance of payments, domestic defense costs, and the domestic economy, as well as U.S. influence abroad. Harold Brown, in his FY80 Department of Defense report, succinctly stated the costs which are implied by a decline in U.S. arms sales abroad:

[T]here are certain economic costs to the United States in reducing overseas arms sales. There may be problems associated with keeping certain production lines open. When overseas markets are reduced, defense contractors revenues will be lower, and certain research and development (R+D) expenses, now recouped from overseas purchasers, will fall upon the United States taxpayer. As the President noted in his report to Congress, the policy is not expected to have a major effect on overall United States trade performance, inasmuch as arms sales constitute less than one percent of current United States trade. However, the impact may be felt in certain local areas

where the economy depends extensively upon weapons manufacture.⁴

This paper is divided into four chapters. The first deals with the Third World arms market in general. Background on the market is provided and literature related to Third World arms transfers is reviewed. Additionally, major assumptions used throughout the paper are asserted.

The second chapter deals specifically with the Third World demand for arms. The objective in this chapter is to project Third World arms demand into the next decade using forecasts of economic variables. Before this objective can be achieved, the correlation between arms import levels and several economic variables must be established. This chapter discusses the methodology used in analyzing this relationship and the results achieved. Regional arms demand forecasts are then presented.

The third chapter surveys the supply of arms to the Third World. First, background on the economics of arms production and government influences on arms transfers is provided. Market share figures are then discussed, with emphasis on the market position of the United States in the Third World. The U.S. share in those regions of the developing world which are projected to be large arms demanders will be of special interest. A

discussion of past and present U.S. policy with respect to arms transfers follows. The chapter ends with an analysis of the Foreign Military Sales credit program and its relationship to U.S. sales abroad.

The fourth chapter reiterates conclusions reached in the paper. Policy implications of these conclusions are discussed.

Background

Beginning in the 1960s, the Third World arms market has been marked by six important changes: 1) substantially larger amounts of money are being spent on arms by the Third World; 2) higher technology arms are being demanded by and sold to developing countries; 3) arms grant aid furnished to the Third World by developed countries has declined to negligible levels; 4) there has been an increased desire in the Third World for multiple, rather than single, arms suppliers; 5) many Third World countries are producing arms indigenously, both for internal use and for export; and 6) the major arms exporters of the developed world have become increasingly more competitive in their attempts to sell arms to developing nations.

While there are many possible explanations for these changes, two are especially significant: the development of Third World economies (aided substantially by the commodity price boom of the 1970s) and the changing nature of weapons.

The increased development of Third World economies helps explain the first three changes above. Surplus resources which can be used to purchase arms are now available. In addition, many countries, having reached a threshold level with regard to armed forces, desire to equip generations of weapons and purchase the latest in modern equipment. These arms may be purchased for many reasons, including the necessity to protect increasingly valuable resources from external threats, the need to repress internal revolutionary movements, or a desire to purchase arms for prestige reasons.

As Third World countries have become able to afford weapons, less grant aid has been furnished by the developed world. Arms are now sold primarily for cash or credit, with credit terms being an important sales tool for arms exporters.

Thus, the development of Third World economies partially explains the increased quantity and quality of arms being supplied to them, as well as a reason for the

dramatic decline in arms grant aid. Another factor, the present nature of weapons, explains other changes which have occurred in the Third World arms market.

Quantum technological advancements in weaponry have been evidenced during the past twenty years. Because of these advancements, modern weapons have two traits: increased logistical requirements and higher unit costs.

High technology levels imply an increased need for logistical support, particularly in maintenance and spare parts. There is less compatability between parts; a "black box" taken from one weapon cannot replace a different "black box" in another. Missiles used by one country's system will not operate on guidance signals from another country's director. Thus, the importing country's dependency upon suppliers is greater; a cutoff of ammunition or spare parts by a supplier in a major war will cause almost certain defeat.

The supplier-recipient relationship becomes critically important. Although logistical problems are often compounded when using systems supplied by different exporters, many Third World nations who can afford the extra expense now use multiple suppliers.

One alternative to multiple suppliers is to produce arms indigenously. Along with the advantage of

independence, a country which produces its own arms need not devote as much foreign exchange to arms imports and can recoup some costs by exporting arms to other nations. Since the Third World countries often do not possess the technical skills required to produce advanced weapons, coproduction and licensing agreements are used to gain necessary expertise.

The second and probably most important aspect of high technology weapons is their high unit price. A weapon's price is primarily determined by the production run. Longer runs imply lower unit costs for two reasons: 1) significant economies of scale are present in weapons production; and, 2) with longer runs, high research and development costs can be spread over more units. Countries which produce weapons find an increasing need to export their products, because their internal demand for highly capable modern weapons will not justify long production runs. This need for large production runs has led to greatly increased competition on the part of suppliers in their quest to export arms.

In sum, during the 1960s and 1970s, the economies of the Third World countries have developed. These countries have been able to allocate additional resources to the development of modern armed forces. Substantially greater

quantities of higher quality weapons have been purchased by the Third World even while grant aid has dwindled to negligible levels. Concomitantly, due to changes in the nature of war, many developing countries have found an increased need to have multiple suppliers or to produce arms internally, while the developed countries have found an increased need to export these arms. It would appear that economics, rather than politics, may be becoming the prime determinant in arms transfer decisions.

As the Third World arms market has changed, research on arms transfers to the developing world has also changed. The next portion of the paper reviews some of the literature related to the Third World arms market.

Review Of The Literature

The need for economic analyses of arms transfers to the Third World has appeared only recently. During the 1950s and 1960s, low technology, inexpensive weaponry was frequently given or sold at very low prices to developing countries. The basis for arms transfers during this period lay chiefly in political considerations--a furtherance of

the donor's influence in the region. The recipient had little say in the type or quantity of weapons delivered; their primary decision was the choice of political alignment.

Studies performed during this period focused primarily on the political variables implicit in the transfer of arms to the Third World. Three such studies include: the Kemp/Sutton Adelphi Paper, Arms to Developing Countries, 1945-1965; the Leiss/Kemp MIT Study, Arms Transfers to Less Developed Countries; and, the SIPRI publication, The Arms Trade with the Third World.

The Kemp/Sutton report is the first comprehensive study of arms transfers to the Third World. Analyzing fifty countries, Kemp and Sutton compare the number of major weapons (jet aircraft, warships, tanks, and missiles) transferred during two time periods, 1946 to 1955 and 1956 to 1965. Kemp and Sutton found: "The most striking change...in a comparison of the two decades following WW II is the change in suppliers."⁵ The report showed that during the later period, the U.S. became the primary supplier to the Far East and NATO while the U.K. became the major supplier in the Middle East, South Asia, Australia, and South America. The study noted an increased desire by Third World countries to obtain multiple weapons suppliers.

Kemp and Sutton also discussed the role of "prestige" demand for arms and the growth of indigenous defense industries in the Third World. In the study, little mention is made of an economic determination of arms import demand; in fact, Kemp and Sutton state:

Modern armaments cannot be equated with ordinary engineering exports; if they could, it would be proper for normal economic forces to determine the level of armaments in a given area. But everyone is aware that the sale and transfer of modern armaments has gone beyond the bounds of ordinary *laisse-faire* economics.⁶

This study is best remembered for its early recognition of the importance of the Third World arms market and the historical context it provides for later analyses.

The Leiss/Kemp MIT report is similar to the Kemp/Sutton Adelphi Paper. It provides a comprehensive survey on the transfer of major weapons systems to the Third World. In the study, fifty-two developing countries are analyzed for the period 1945 to 1970. Major weapons include combat, trainer, transport, and utility aircraft, missiles, helicopters, tanks, armored personnel carriers, and armored cars, and naval vessels of all types.⁷ The study is concerned with "relative magnitudes, trends, styles, and relationships" in arms transfers.⁸ As in the Adelphi study, arms transfers are tabulated numerically rather than in dollar terms. Country inventories and acquisition rates

are categorized and changes in supplier market shares are noted. The market composition of each weapon is described as monopoly, duopoly, or free market for each five year period from 1945 to 1970. A noticeable transition from a U.S. or U.S.S.R. monopoly/duopoly to a free market in most weapons categories occurs during the time period.⁹ The study reaches the conclusion that: "the trend has been and continues to be in directions that make control of the quantity of arms transferred to the sample countries more rather than less difficult for the United States alone to effect."¹⁰

Since the Leiss/Kemp study does not use dollar values for weapons, no theories regarding an economic basis for arms transfer are tested. The project does not suggest that economic decisions made with respect to arms transfers are unimportant, but rather comments that the purchase price of a weapon often does not reflect its true "market" value:

None of this, of course, argues that the cost of acquiring and operating weapons systems is not or should not be a major consideration in making decisions about acquiring or donating them. Nor does it imply that economic considerations--e.g., earning foreign exchange, reducing the "dollar gap," making indigenous development and production economically feasible--are not critical pressures on donors to sell arms. The above arguments relate only to the question of whether some derived monetary measure of the magnitude, trend, and direction of arms

transfers is most meaningful for examining the policy implications for the United States of its arms transfer decision.¹¹

The third study which analyzes major weapons transferred to the Third World is the SIPRI publication entitled The Arms Trade with the Third World. This study examines the acquisition of major weapons by 91 countries for the period 1950 to 1969. The analysis has five parts: 1) an overview of the market; 2) a study of eleven major arms suppliers; 3) a regional study of Third World arms purchasers; 4) a survey of present and prospective indigenous production in the Third World; and, 5) a reference section which includes listings of major weapons deliveries to the developing nations.¹²

The SIPRI study provides one of the first models of the supply of arms to the Third World. Since the model deals strictly with the supply of arms to developing nations, one must assume that demand for arms is considered by the authors to be either inexhaustible or unpredictable. In the model, arms transfers are classified by "hegemonic, industrial, and restrictive" patterns, much as the MIT study focused on the classifications of monopoly, duopoly, and free market. In a hegemonic pattern, the supplier dominates the arms recipient. The U.S. and the U.S.S.R. are cited as hegemonic suppliers. In the industrial pattern, the

industrial supplier must export arms to maintain internal defense production; the European countries exhibit this type of supply. Finally, the restrictive supplier is one who will not supply arms to a country in conflict due either to political or constitutional restraints. Switzerland and Sweden are examples of restrictive suppliers.

The SIPRI model provides a useful first attempt at explaining the Third World arms market. It is deficient, however, because it attempts to delineate too closely the political and economic rationale of arms suppliers. Hegemonic and restrictive suppliers transfer weapons solely for political reasons; no economic factors influence their decision. Industrial suppliers, on the other hand, sell weapons strictly for economic reasons, as a means to promote internal production. Such a delineation obviously does not reflect reality; both political and economic variables influence all arms sales decisions.¹³

Thus, the three analyses which tabulate the recipients and suppliers of Third World arms transfers do not provide a clear explanation of arms demand or supply, although they do provide important data which can be used for this purpose. These studies also provide little basis for any projection of future trends, save the assumption that historical trends will continue into the future.

Several studies have been undertaken which attempt to predict defense expenditures on the basis of economic variables. While these studies often attempt to relate the growth of a country's defense expenditures to its economic growth, they still provide some indication of the relationship between economic variables and defense expenditures.

One of the earliest studies, done by H. Coward at MIT in 1964, assumed that defense burden (the percent of GNP spent on defense needs) is constant over time.¹⁴ Based upon this assumption, Coward grouped the Third World countries into two percent, five percent, ten percent, etc. burden categories. He then predicted GNP for these countries and multiplied assumed burden by predicted GNP to arrive at a defense expenditure figure. His estimates, when compared to actual values, had anywhere from a two to 150 percent error; after two years, the average error was about 35 percent while after 12 years, the average error increased to 55 percent. However, the data available to Coward was limited and inconsistent. The inaccuracy of his study could have been due to inaccurate GNP predictions, incorrect defense burden assumptions, or changing defense burden figures over time.

An unpublished study prepared by Joergen R. Lotz and

Elliot Morss in 1970, entitled A Study of Military Expenditures, analyzed various economic indicators and their relationship to defense spending in 72 developed and developing countries. Lotz and Morss found:

a positive relationship between per capita income and defense spending as a percent of GNP while the latter is negatively related to imports as a percent of GNP. It also demonstrates that foreign aid is positively related to defense spending.¹⁵

Lotz and Morss believe "the inclusion of the developed countries in the sample may account for the difference in the sign of the relationship between per capita income and defense spending."¹⁶

Using cross sectional data on 37 LDCs, Lotz went on to conduct a study which measured the dependency of defense burden (D/Y) on GNP per capita (Y/P), mineral and oil exports (MX), urbanized population (U), and total government budget as a share of income (B/Y). He estimated the following equation:

$$D/Y = 0.262 - 0.006 Y/P + .02 MX + 0.048 U + 0.081 B/Y$$

$$R\text{-Squared} = 0.366. \quad ^{17}$$

This study showed that defense burden is positively related to resource endowments (a proxy for wealth), urbanization (a proxy for development level), and the total

government budget as a percentage of income. Defense burden appears to be negatively related to income. Lotz explains this finding by the fact that a minimum amount of defense spending is required for any country, irrespective of its national income. Less affluent countries must spend a higher share of their income at times to protect themselves from richer neighbors. Lotz' R-squared figure shows a "good" fit for a cross-sectional study.

A multiple regression study of various economic and defense variables was conducted by H. Weil et al. for ARPA in 1975. Through the use of a 28 equation computer model, Weil attempted to predict the value of "important economic, political, military and social variables over a 5 to 20 year range."¹⁹ Included in his variables were defense expenditures, military manpower, alignment direction and alignment intensity. Considering the success of his efforts, Weil states: "interpretation of the results of these forecasts should focus on the significant within region differences in these variables, emphasizing outliers, and not on point predictions of the values of the forecast variables or necessarily over-time changes in these values for particular countries."²⁰

Several references in the literature point to the need for a further economic analysis of defense spending and arms

import demand patterns. Oberg (1975) complains that the SIPRI model of the Third World arms market lacks a "world view" and notes the "very limited use of economic variables and economic explanation" in the study.²¹ Peleg (1977) laments the fact that "most of the literature devoted to arms supply is . . . descriptive rather than explanatory in nature."²² He also criticizes the SIPRI model for its "almost total avoidance of economic considerations."²³ Finally, Neuman and Harkavy point to the need for further studies "in the nature of correlations between levels of arms acquisitions, GNPs, defense expenditures, etc."²⁴

The Economics of Third World Military Expenditure, written by D.K. Whynes in 1979, has helped fill this apparent void. In his book, Whynes has combined his own research with numerous monographs and studies. He presents the first comprehensive volume on the relationship between economic variables and military spending in the Third World. Whynes focuses on defense expenditures rather than arms imports and provides several theories which discuss the relationship between economic growth and defense spending. Although these theories may be useful in describing arms import demand, Whynes does not directly address this issue.²⁵

In short, as emphasis in the Third World arms market has shifted from political variables to economic

determinants, the literature related to the market has undergone the same transformation. This study continues in that trend, focusing upon an economic determination of arms import demand, as well as a quantitative assessment of the market position of the U.S. in the Third World arms market.

Major Assumptions

Throughout this study, three ceterus paribus assumptions will be asserted: 1) that no major wars break out in the Third World; 2) that the U.S.S.R. and the People's Republic of China maintain approximately the same policies with respect to arms transfers and weaponry production; and, 3) that the Japanese do not enter the arms market as significant arms demanders or suppliers.

The outbreak of a large scale war involving numerous Third World and developed countries would have serious ramifications for any theory espousing an economic determination of arms transfers. A country under attack will spend whatever funds are necessary to repulse the attack and guarantee national survival. In addition, it is highly likely that if such a war occurred, alliances would quickly form between the Third World countries and the developed nations. Arms would probably be transferred at

little or no cost to the recipients during the period; the developed countries would provide arms to gain or maintain influence in the countries involved. The outbreak of war would seriously affect any demand projections and may create some changes in supplier-recipient relationships.

The introduction of the Soviet Union as a major arms competitor would have more serious implications for the supply side of the market, particularly market share projections.

The U.S.S.R. has traditionally supplied arms to countries for political rather than economic reasons.²⁶ While the Soviet Union does gain some hard currency earnings (approximately twelve percent) from her arms dealings, the export of arms abroad to lower the cost of internally demanded arms is not strictly required.²⁷ The recent 1.6 billion dollar sale of weapons to India at concessionary terms (2.5 percent over 17 years) attests to this.²⁸ It is entirely possible that the Soviet Union will enter the arms market as a competitor for economic reasons; however, it is more likely that the U.S.S.R. will continue to supply arms to traditional recipients.

The PRC has also usually supplied weapons to developing countries for political reasons. By primarily supplying countries in the South Asia area, the Chinese have used arms

exports to maintain influence in their geographic region.

China has also supplied her own arms, relying principally on the size rather than the technological level of her armed forces to overwhelm any enemy.²⁹ While there have been increasing demands within China for the development of modern armed forces, "additional defense expenditures--especially those on military hardware--require the use of high priority inputs from other sectors where scarcities and imbalances exist."³⁰ The present ordering in investment priorities in China shows the relative importance of arms modernization: 1) agriculture and agro-industry; 2) certain segments of industry (especially petroleum and petrochemicals, but coal and iron, and mining and steel finishing as well); 3) the military establishment; and, 4) transportation and communication.³¹

The Chinese are currently investing large sums of money in oil drilling and extraction equipment. Should the Chinese become major oil exporters, their increased foreign exchange earnings could allow the importation of high technology military equipment. Within the past few years, friendlier relations with the West have resulted in some large arms purchases. The PRC "has concluded transactions with the United Kingdom for Rolls Royce Spey engines and technology for use in Chinese jet fighters; with France for

helicopters, radar, and aircraft and missile tracking equipment; (and) with West Germany for helicopters." ³²

Thus, it is extremely difficult to assess the role of the PRC in the Third World arms market in the next decade. With a lack of any information to the contrary, however, it will be assumed that present trends of arms demand and supply will continue into the next decade for both the Soviet Union and China.

The prediction of Japan's demand and supply pattern is easier. Restrained by the Japanese constitution, the Japanese may maintain only a small defensive force and cannot sell weaponry abroad (except for some aircraft and electrical equipment not strictly classified as weaponry).³³ While some Japanese manufacturers desire to enter the arms market, the overwhelming feeling in Japan is that no constitutional changes should be made.³⁴ Again, with no information to the contrary, it will be assumed that Japan will not become a major demander or supplier of arms in the next ten years.

In short, three major assumptions regarding the outbreak of war and the demand and supply patterns of the Soviet Union, the PRC, and Japan are made at the outset of this study. Should these assumptions be incorrect, the major effect would be on the demand projections and market share trends.

CHAPTER TWO: THIRD WORLD DEMAND FOR ARMS

Introduction

The importance of an accurate assessment of Third World arms demand cannot be overemphasized. By evaluating the future demand for arms exports to developing countries, domestic defense budgets and procurement, as well as U.S. defense and foreign policy, can be better formulated and implemented. Yet, estimates of arms demand have rarely been attempted and those attempts which have been made are usually based on subjective considerations, such as military strategy, socio-political indicators, and perceptions of the world order.

There are several benefits in using economic variables to forecast arms demand. First, economic data on a country are usually readily available and open to public inspection. Arms data, on the other hand, are frequently classified and unavailable through normal channels. Secondly, predictions of economic data can be made using established economic doctrines. If a link between economic variables and arms demand can be determined, then arms imports can be predicted using estimates of economic variables. Finally, by linking objective economic data and arms imports, some of the

subjectivity presently involved in predicting arms imports may be removed. While an estimate of the amount of money spent on arms imports will not aid analysts in determining the exact mix of weapons purchased, it does allow for some speculation on the various combinations of weapons which can be imported.

The objective of this portion of the paper is to project Third World arms demand. The hypothesis that arms import levels are systematically related to economic variables will be tested. If found to be true, arms demand will be forecast using estimates of economic variables.

Methodology/Results

In this section, the hypothesis that arms import demand can be correlated with economic variables is tested for its empirical validity. Four data bases are described and the variables to be studied are selected. Representative countries used in the analysis are characterized. The tests performed, as well as the results of those tests, are then discussed.

Data Bases

Data on military expenditures, armed forces manpower levels and arms transfers are available from four major sources: the International Institute for Strategic Studies (IISS), the Stockholm International Peace Research Institute (SIPRI), the Arms Control and Disarmament Agency (ACDA), and the Defense Intelligence Agency (DIA).

The IISS publishes a yearbook entitled The Military Balance.¹ This booklet provides tables and armed forces summaries on 132 countries. The tables show defense expenditures (current dollars) and manpower levels on a five year basis (current year and four years previous), and, most importantly, major identified arms agreements (with some dollar values) by recipient and supplier. The country summaries include the size and armament of each country's army, navy, and air force, as well as basic facts regarding population and conscription. Since The Military Balance focuses on the developed countries and gives few dollar values for arms transfers, this source might best be used as a supplementary rather than a prime data base.

The SIPRI World Armaments and Disarmaments Yearbook has been referenced extensively in the literature. This book is printed yearly by SIPRI, an independent, multinational

organization. The SIPRI yearbook tabulates the following information for most nations of the world:

1. major military expenditures in constant dollars
2. defense burden (defense expenditures as a percent of GNP)
3. a register of indigenous and licensed production of major weapons systems in industrialized and Third World countries (on an annual basis)
4. a rank order of arms suppliers to the Third World
5. a rank order of Third World arms transfers
6. charts showing the spread of more technologically advanced weapons to the Third World and
7. a register of the arms trade with Third World countries on a yearly basis (no dollar values).

The SIPRI data includes only major arms expenditures (not rifles, uniforms, and ammunition) and does not give annual bilateral arms transfer information. SIPRI data is reasonably good, especially when one considers that it is derived from publicly available sources. This data is probably more accurate than IISS information, although it could be presented in a more disaggregated form (a frequently cited source is SIPRI worksheets) which would add to its value as a data base. Again, the SIPRI data appears

to be an excellent supplementary source, especially when dealing with supply trends.

The ACDA World Military Expenditures and Arms Transfers (WMEAT) book is published on an annual basis (with ten years of data per book) by the State Department. ACDA information is based upon the classified FOMA (Foreign Military Assistance) data discussed below. ACDA tabulates the following information for 145 countries:

1. military expenditures (current/constant)
2. GNP (current/constant)
3. population
4. total government expenditures (constant)
5. armed forces
6. arms imports and exports (current/constant)
7. value of arms transfers by major supplier and recipient (cumulative over five years)
8. assorted other social and governmental indices.

Since it is based upon classified DIA data, the ACDA information is considered the most accurate of the three unclassified sources, as well as being the most comprehensive. However, ACDA data is rounded excessively to downgrade its classification and it does not contain annual bilateral arms transfer information. Because it is not classified, but is comprehensive, accurate, and available on

computer tape, ACDA data are probably the best choice for an unclassified research project.

Foreign Military Assistance (FOMA) is published by DIA. This source has a SECRET classification. FOMA is the only source with bilateral arms transfer information: it is considered the most accurate source of information available. The major drawback to the use of this source is its classification which requires a SECRET security clearance, a classified research project and secure computer banks for any computer manipulation of the data.

For this project, ACDA data is used throughout. This is due primarily to its availability on computer tape, its valuation of small arms transfers, and its accuracy vis-a-vis other available sources.³ However, the data has several limitations. ACDA tabulates only "the value of actual shipments and deliveries of arms, rather than agreements signed or financial transfers to pay for weapons."⁴ The ACDA information does not include "nuclear, chemical and biological weapons, strategic missile systems, foodstuffs, training, and technical services."⁵

Additionally, dollar value time series are considerably affected by inflation and currency exchange rates.⁶ The inflation rate used by ACDA is based on a GNP price index computed from World Bank data.⁷ Thus, "the accuracy with

which [the GNP price index] represents the actual inflation rate in the arms industry remains uncertain."⁸

Finally, ACDA data is revised annually, usually with upward revisions in arms transfers. Thus, "WMEAT 1966-1975 shows North Korea arms imports for 1973 as \$154 million, while the next year's edition showed \$297 million for the same year."⁹

In short, "it may not always be appropriate to compare the value of arms transferred to military expenditure or GNP. The ACDA value of arms imported may not be representative of the cost to either the recipient or supplier of the weapons."¹⁰ In interpreting the results of the analysis, this limitation must be remembered.

The Selection of Variables

Having chosen a data base, the particular variables to be used in the study must be selected. While there are many variables which could be correlated with arms import demand, six are chosen for this study. These include: gross national product (GNP), gross national product per capita, total exports, total exports per capita, military expenditures, and military expenditures per member of the armed forces (MILEX/AF).

The basis for using these variables lies in economic theory. Demand is primarily a function of both the ability and the willingness of a consumer to pay for a good. The ability term refers primarily to the income of the consumer, while willingness includes the purchaser's tastes and preferences. Some of the above six variables fit into both categories, but, for present purposes, GNP, total exports and total exports per capita will be specified as income variables and GNP per capita, military expenditures, and military expenditures per member of the armed forces will be categorized as taste variables.

GNP, a measure of the value of the country's total goods and services produced in a year, provides an indication of the aggregate amount of resources available. As GNP increases, the resources available for alternative uses increase. It is possible that one alternative use is the procurement of arms.

Since arms imports require foreign exchange, it is also likely that the aggregate amount of total exports and total exports per capita are related to arms import levels. These figures provide a measure of available foreign exchange. As foreign exchange increases, a portion of the additional funds may be used to purchase arms.

Tastes in arms imports relate primarily to the degree

of sophistication desired and the relative importance of security needs. GNP per capita and military expenditure per member of the armed forces are two proxies for sophistication. The GNP per capita figure is a rough measure of the level of a country's development. As a country increases its productive capacity and the birth rate declines, labor becomes more valuable. In such a case, more capital intensive military equipment may be demanded.

In the same sense, MILEX/AF provides a crude proxy for sophistication. A very low MILEX/AF figure would imply low technology armed forces (basically a uniform and a rifle for each man). A higher figure might indicate higher technology levels which would require more arms imports. However, this statistic could measure inefficiency and waste as well as technology levels. Thus, it may show little correlation with arms purchases.

Aggregate military expenditure is a final proxy for taste. Higher defense spending may indicate a greater need for security, thus arms imports may increase.

In short, while many variables could have been chosen for analysis, six indicators which are related primarily to the income and tastes determinants of demand were selected.

Having stipulated a data base and specified the variables to be analyzed, a representative group of Third

World countries must now be defined.

Representative Countries

The ACDA data contains information on 145 countries (27 developed and 118 developing). An analysis of all 118 developing countries would be time and resource consuming with little guarantee of results differing from those obtained in analyzing a representative group. In selecting such representative countries, due regard should be given to the following areas: 1) data availability and accuracy; 2) the significance of the country in the arms market; and, 3) the likely economic significance of the country in the future.

The proxy nations for the study were selected in the following manner. The countries included in the ACDA tables were ranked from one to twenty in the following areas:

1. population
2. GNP
3. arms imports (cumulative 1973-1977)
4. men under arms
5. defense expenditures
6. military expenditure per member of the armed forces

Forty-four countries were among the top twenty LDCs in one or more of the above categories. Data was either unavailable or inaccurate for four of these countries

(Angola, North Vietnam, South Vietnam, and Bangladesh). These nations were not included in the analysis. In all, forty representative countries were selected. These countries are listed in Table 1.

It is expected that some of the countries, particularly those that receive large amounts of external military aid, will show little correlation between economic variables and arms import demand. Such countries do not depend upon their own economic resources to purchase arms. These countries may be referred to as "client" states and include Cambodia, Cuba, Egypt, Israel, North and South Korea, Taiwan, and Thailand. In the paper, the hypothesis that these countries exhibit little correlation between economic variables and arms demand will be tested.

Analysis/Interpretation

Using the forty representative countries, the relationship between arms imports and economic variables is principally analyzed using linear regression analysis. Multiple regression tests were also performed, but the findings of the tests were inconclusive. The methodology and results of these tests are presented in the Appendices.

Due to the capital nature of arms imports, as well as

TABLE 1

REPRESENTATIVE THIRD WORLD COUNTRIES

AFRICA

Algeria
 Angola*
 Ethiopia
 Kenya
 Libya
 Morocco
 Nigeria
 Somalia
 South Africa
 Sudan
 Zaire

MIDDLE EAST

Egypt
 Iran
 Iraq
 Israel
 Kuwait
 Oman
 Saudi Arabia
 Syria
 U.A.E.

EAST ASIA

Burma
 Cambodia
 China, Taiwan
 Indonesia
 Korea, North
 Korea, Republic of
 Malaysia
 Philippines
 Thailand
 Vietnam, Soc. Rep. of*
 Vietnam, South

SOUTH ASIA

Afghanistan
 Bangladesk*
 India
 Pakistan

LATIN AMERICA

Argentina
 Brazil
 Chile
 Colombia
 Cuba
 Ecuador
 Mexico
 Peru
 Venezuela

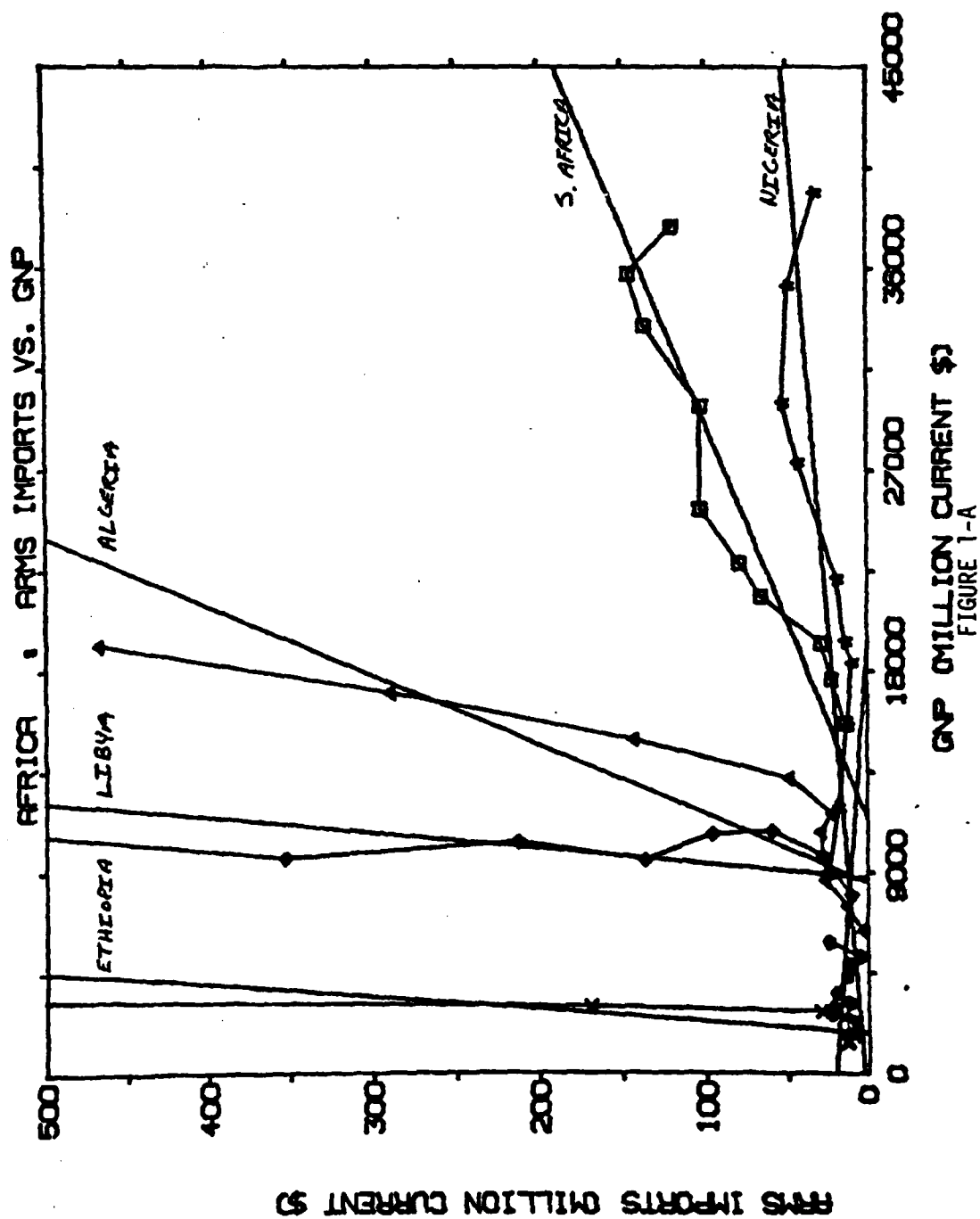
* Data unavailable or inaccurate.

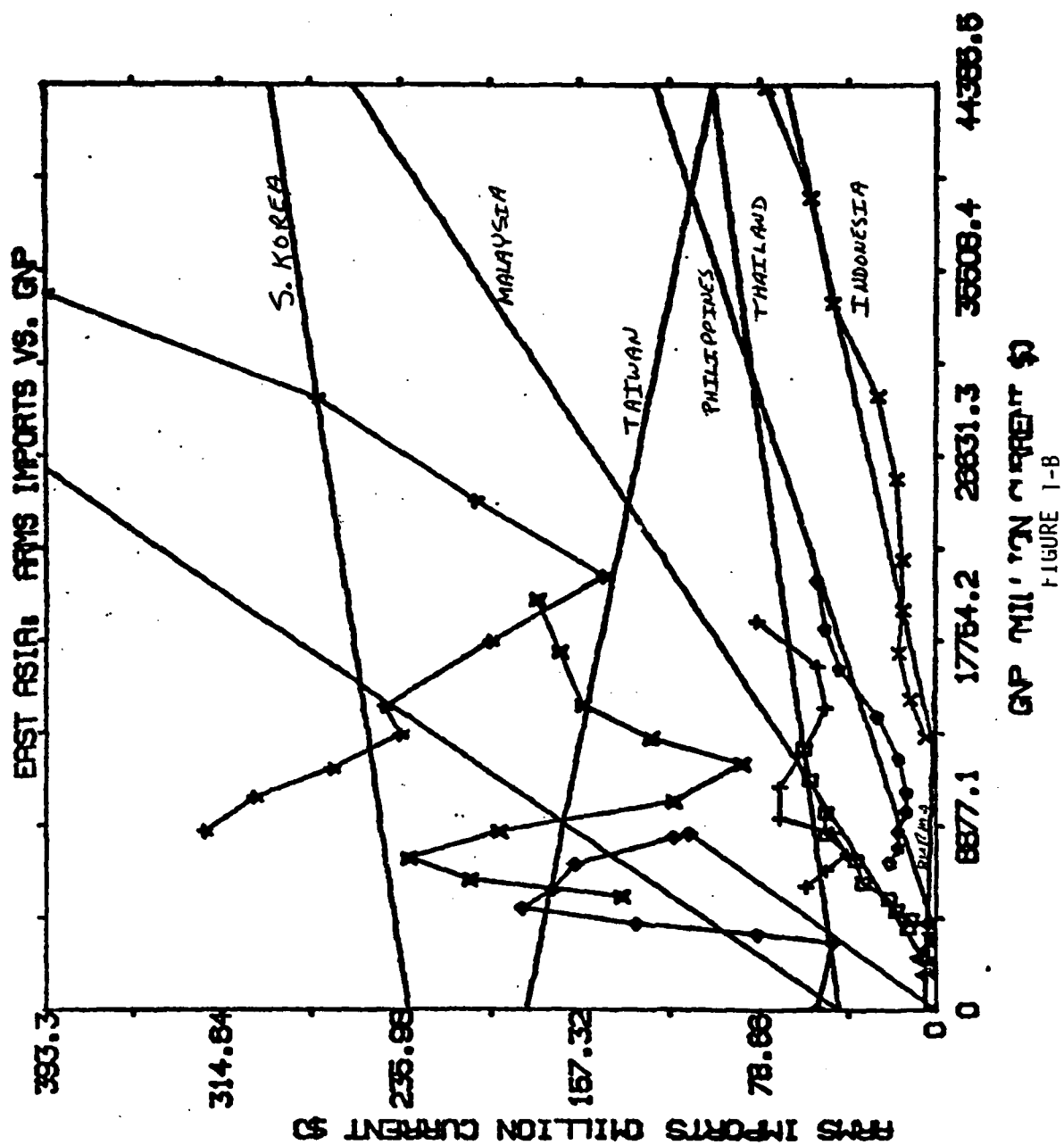
the use of delivery versus agreement data, either a two or three year moving average was used throughout the study. Current rather than constant dollars were also used, primarily so that estimates derived from demand analysis could be used for supply side interpretation of financing needs. Finally, time series data is used throughout the study except for several multiple regression runs which use cross sectional groups of 16 and 33 countries.

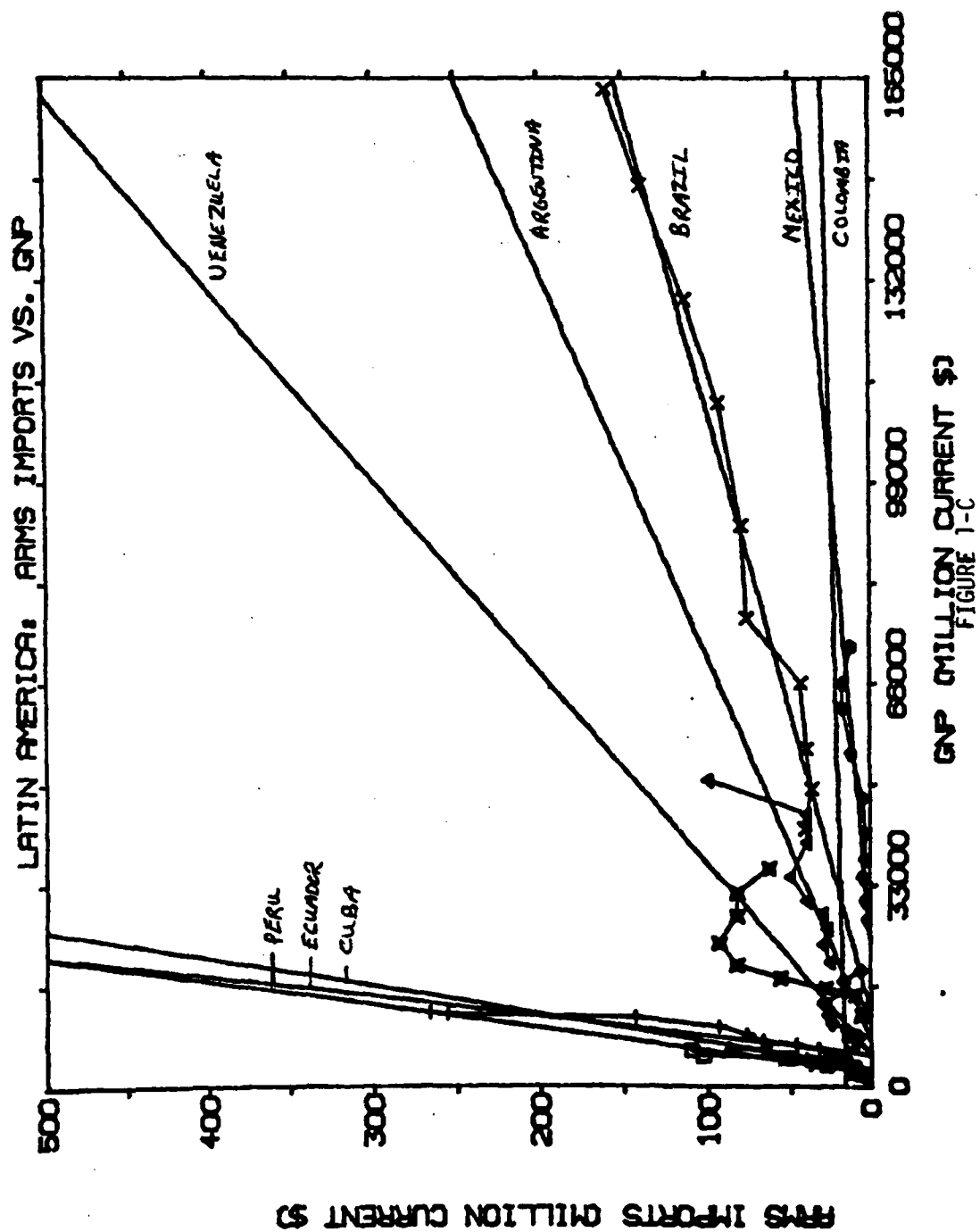
A three year moving average of arms imports was plotted against GNP, GNP per capita, and total exports. The countries were plotted by region and computer trend lines were drawn through the data points.

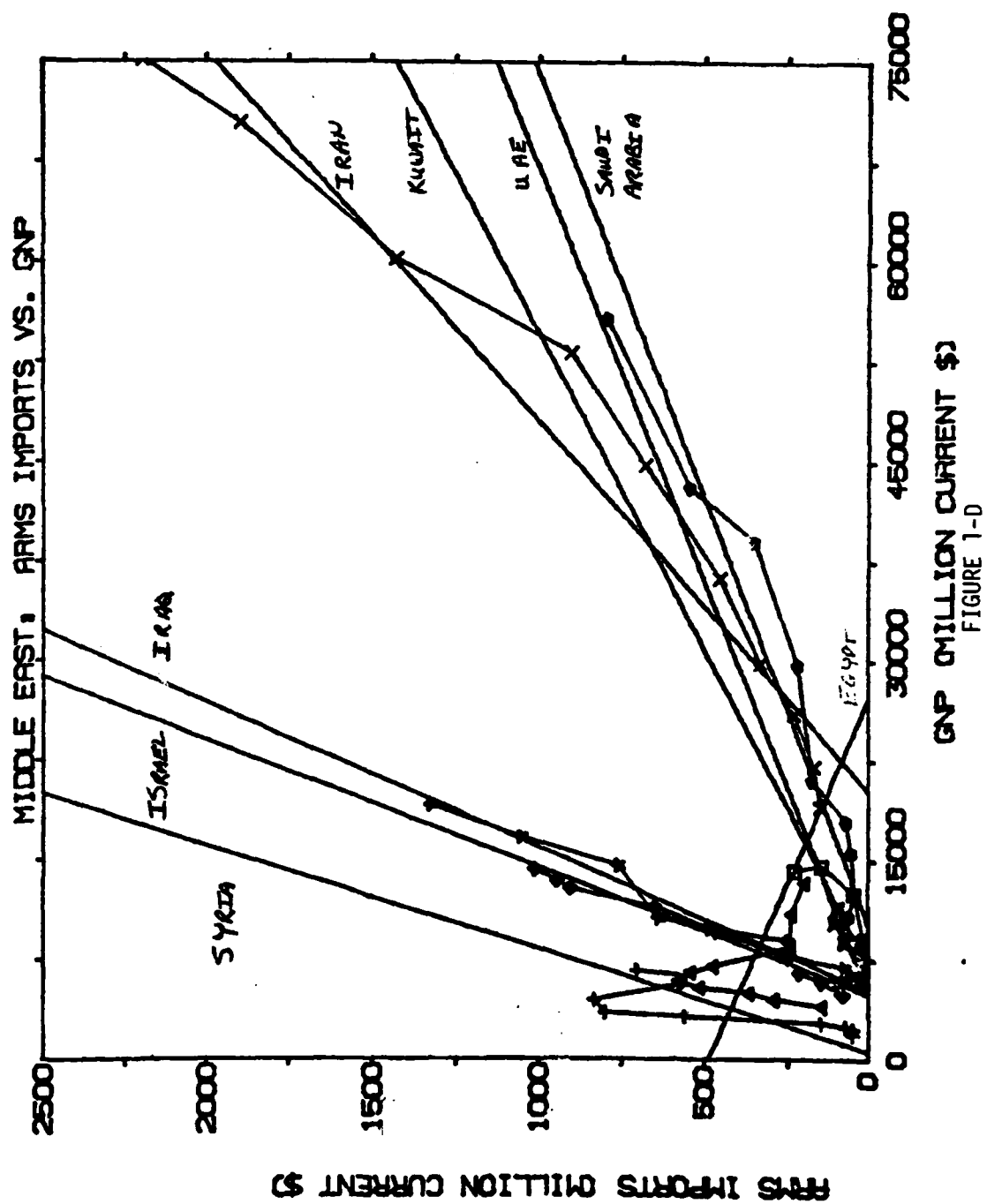
The graphs of arms imports versus GNP for the five regions are given in the text, while the graphs of arms imports (or arms imports per capita, respectively) versus GNP per capita, and total exports are provided in the Appendices. Except for the "client state" countries, a linear trend was prominent in most of the countries for a majority of the variables.

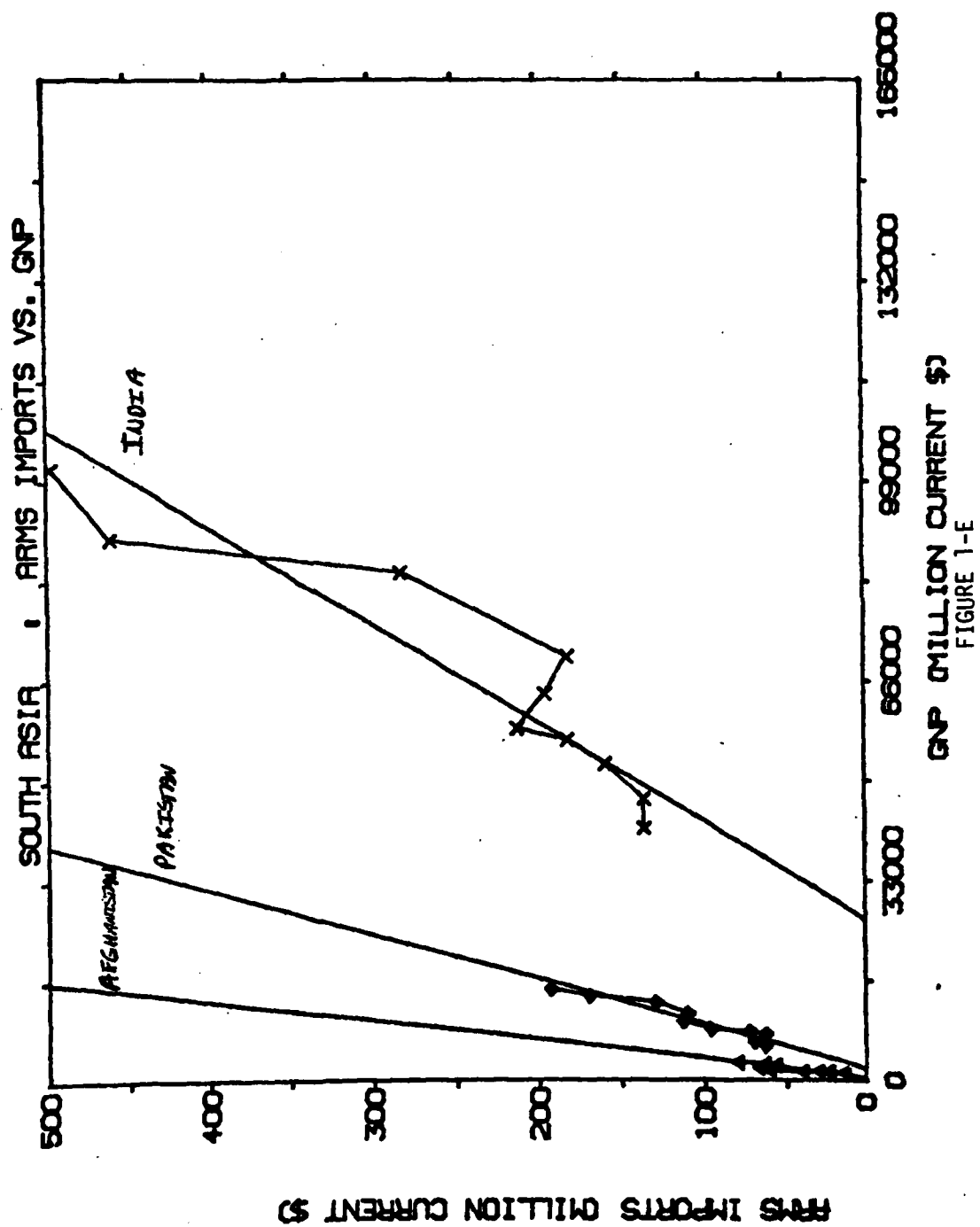
Based upon the straight line nature of the graphical results, linear regression tests were then performed. For forecasting purposes, the following criteria were set:











If more than forty percent of the variation in arms imports (as determined by the r-squared figure) is explained by a variable and the t-test for that variable provides a ninety-five percent confidence level, then, for the purposes of this paper, the variable can be used to forecast arms import demand.

Since almost all of the tests had eight degrees of freedom, a "t" equal to 1.86 is required to fulfill the criteria.

Using this criteria, the following results were obtained:

	<u>Variable</u>					
	GNP	GNP p.c.	Total Exports	Total Exports p.c.	Military Expenditures	Milex per m n
Number of Countries which meet criteria	30	28	29	25	24	20

From the above, GNP is obviously the most useful variable for forecasting purposes.

The results of all of the regression tests except GNP are provided in Appendix tables. From the arms imports versus GNP regression results presented in Table 2, two important findings related to the GNP coefficient and the r-squared figures should be noted.

First, the GNP coefficient can be seen to vary widely. This coefficient measures the marginal propensity of a

TABLE 2
REGRESSION RESULTS: ARMS
IMPORTS VERSUS GNP

<u>Region/ Country</u>	<u>GNP Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
<u>AFRICA</u>				
Algeria	.032	5.40	.79	-276.84
Ethiopia	.182	2.81	.50	-331.45
Kenya	.006	4.21	.69	-7.27
Libya	.147	7.46	.87	-1,289.95
Morocco	.035	5.65	.80	-158.15
Nigeria	.001	2.79	.49	2.64
Somalia	.503	8.93	.91	-116.93
South Africa	.006	7.54	.88	-64.01
Sudan*	-.001	.55	.04	20.45
Zaire	.025	5.79	.85	-60.11
<u>EAST ASIA</u>				
Burma*	-.0003	-.34	.01	5.33
Cambodia*	.128	1.19	.15	21.16
China, Taiwan*	-.002	-.57	.04	181.41
Indonesia	.002	9.71	.92	-25.65
Korea, North*	.006	.96	.10	82.07
Korea, Rep. of*	.001	.48	.03	233.24
Malaysia	.006	11.09	.94	-9.27
Philippines	.003	6.25	.83	-11.30
Thailand*	.001	1.39	.20	43.91
<u>LATIN AMERICA</u>				
Argentina	.002	3.09	.54	-12.22
Brazil	.001	16.10	.97	-12.44
Chile	.010	2.89	.86	-70.39
Columbia*	.0001	.12	.002	16.09
Cuba	.011	5.07	.76	-6.43
Ecuador	.026	8.82	.91	-55.88
Mexico	.0003	5.42	.78	-7.56
Peru	.031	6.45	.84	-156.97
Venezuela	.003	2.99	.54	-16.61
<u>MIDDLE EAST</u>				
Egypt*	-.018	-1.02	.12	489.70
Iran	.036	12.58	.95	-726.70
Iraq	.092	17.34	.97	-470.44
Israel	.104	12.91	.95	-510.10
Kuwait	.021	4.86	.75	148.55
Oman	.053	4.09	.67	-41.05

Table 2 (Cont'd)

<u>Region/ Country</u>	<u>GNP Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
Middle East (Cont'd)				
Saudi Arabia	.016	10.80	.94	-159.33
Syria	.129	2.81	.50	-66.27
U.A.E. *,**	.016	1.87	.85	-79.92
SOUTH ASIA				
Afghanistan	.032	5.51	.79	-17.80
India	.006	6.87	.86	-164.84
Pakistan	.014	9.90	.93	-27.82

* Do not meet criteria specified in text.

** Only four (4) data sets available.

country to import arms, given an increase in GNP. From a cursory examination of the data, it appears that countries with large populations have lower coefficients. This may be due to the choice of countries selected for analysis (low population countries were in general only selected if they possessed a high arms import level). This point deserves further study.

The r-squared and t-test figures provide an additional finding which relates to the "client-state" hypothesis formulated in the theory section. In general, those countries which were described as client states have a very low r-squared figure: Thailand (.195); Cambodia (.150); Egypt (.115); North Korea (.103); Taiwan (.039); the Sudan (.037); and, South Korea (.028). Notable exceptions include Israel (.954) and Cuba (.762). While Cuba's anomalous behavior cannot easily be explained, one possible reason for the high Israeli figure is the fact that approximately thirty percent of Israel's GNP is spent on defense. Thus, in Israel's case, defense may be a leading sector, contributing to GNP growth. This point also deserves further study.

The other regressions provide additional noteworthy results. As expected (due to its relationship to GNP), total exports and total exports per capita strongly

correlate with arms imports and arms imports per capita respectively in a number of the countries studied. GNP per capita versus arms imports per capita is also a useful predictive variable. Military expenditure per member of the armed forces appears to have a significant correlation in only about half of the countries studied. Finally, the relatively low correlation of military expenditure with arms imports negates the often used assumption that arms imports are a constant percentage of military expenditures. Capital intensity arguments must be accounted for before this assumption can be validly made.

In short, based upon graphical and linear regression results, it appears that GNP may be used to project arms import demand in thirty of the forty countries studied.

Arms Import Demand Projections: 1980-1990

Based upon the above findings, arms import demand for thirty developing countries may be projected into the next decade using GNP growth estimates. In the other ten nations included in the study, other techniques must be used. Using these forty representative nations as proxies for all of the Third World nations in the five regions, estimates as to the importance of various regions in the Third World arms market

in the 1980s can be made.

Table 3 shows the projection methods used for the various proxy nations. In thirty nations, direct projections were performed, i.e., GNP was estimated and arms imports were forecast using the linear regression equations previously determined for each country. For four of the nations in the study (the Sudan, North Korea, the Republic of Korea, and the U.A.E.), pooled regressions were performed, since individual regressions did not provide an adequate basis for direct projections. The pooling data and tests are provided in the Appendices. Since Nigeria and Saudi Arabia were pooled with the Sudan and the U.A.E. respectively, the pooled regression results were also used to project Nigerian and Saudi Arabian arms demand. The GNP growth rate estimates used for both the direct and pooled projections are taken from the World Bank World Development Report, 1980.

For six of the forty nations analyzed, no discernable trend could be ascertained, using either individual or pooled data. Trend line regressions were also attempted for these nations, again without success. Since the arms demand for these nations is required in order to determine regional figures, a mean of 1968 to 1977 arms imports was used as an estimate of future demand.

TABLE 3
 ARMS DEMAND PROJECTION METHOD: SELECTED
 THIRD WORLD COUNTRIES

	<u>Direct Projection</u>	<u>Pooled Projection</u>	<u>Mean</u>
<u>AFRICA</u>			
	Algeria		
	Ethiopia		
	Kenya		
	Libya		
	Morocco		
	Nigeria	Nigeria	
	Somalia	Sudan	
	South Africa		
	Zaire		
<u>EAST ASIA</u>			
	Indonesia	Korea, North	Burma
	Malaysia	Korea, Rep. of	Cambodia
	Philippines		China, Taiwan
			Thailand
<u>LATIN AMERICA</u>			
	Argentina		Columbia
	Brazil		
	Chile		
	Cuba		
	Ecuador		
	Mexico		
	Peru		
	Venezuela		
<u>MIDDLE EAST</u>			
	Iran		Egypt
	Iraq		
	Israel		
	Kuwait		
	Oman		
	Saudi Arabia	Saudi Arabia	
	Syria	UAE	
<u>SOUTH ASIA</u>			
	Afghanistan		
	India		
	Pakistan		

Table 4 contains estimates of arms import demand for the nations and regions in the study, while Table 5 shows the historical and projected importance of the five regions in the Third World arms market in the next decade. The largest projected arms demanders include: Libya; Iran; Iraq; Israel; Saudi Arabia; and, Syria.¹² Regionally, Africa and the Middle East are estimated to be the largest arms importing regions, with East Asia, Latin America, and South Asia making up only a small percentage of the market.

Thus, using direct projections, pooled projections and (for "non-projectable" countries) mean figures, it appears that present trends in the relative importance of the Third World regions will continue into the next decade. The proportion of the market accounted for by East Asia will decline, while relative demand will remain approximately constant in Latin America and South Asia and increase significantly in Africa and the Middle East.

This chapter of the paper has tested the hypothesis that arms import demand can be forecast using estimates of economic variables. Some support for the hypothesis was found: in seventy-five percent of the countries tested, a significant correlation between the level of arms imports and the level of GNP has been noted. Using these results, arms

demand has been projected into the next decade, using estimates of GNP growth. On the basis of these projections, it can be seen that present trends of regional arms demand as a proportion of the total Third World market will continue into the future.

The next chapter of the paper deals with the supply of arms to the Third World, particularly as it relates to the importance and influence of the United States as an arms supplying nation.

TABLE 4

COUNTRY ARMS IMPORT PROJECTIONS

Region/Country	1980		1985		1990		
	1977	1970-80 GNP Growth Rate**	Projec- tion	1980-85 GNP Growth Rate**	Projec- tion	1985-90 GNP Growth Rate**	Projec- tion
<u>AFRICA</u>							
Algeria GNP	19,206	6.4	23,135	5.1	29,667	5.3	38,408
Arms Imports			463		673		952
Ethiopia GNP	3,294	3.0	3,599	3.1	4,193	3.8	5,053
Arms Imports			324		432		588
Kenya GNP	4,257	3.0	"	3.1	5,419	3.8	6,530
Arms Imports			68		74		81
Libya GNP	17,674	8.4	22,512	5.3	29,145	5.8	38,636
Arms Imports			2,019		2,994		4,390
Morocco GNP	10,775	6.4	12,979	5.1	16,664	5.3	21,548
Arms Imports			296		424		596
Nigeria* GNP	39,459	6.4	47,530	5.1	60,952	5.3	78,909
Arms Imports			50		64		82

Table 4 (Cont'd)

COUNTRY ARMS IMPORT PROJECTIONS

Region/Country	1977	1980		1985		1990	
		GNP Growth Rate**	Projec- tion	GNP Growth Rate**	Projec- tion	GNP Growth Rate**	Projec- tion
Africa (Cont'd)							
Somalia							
GNP	432	3.0	472	3.1	550	3.8	663
Arms Imports			120		160		217
South Africa							
GNP	37,941	4.5	43,297	4.9	54,997	4.3	67,882
Arms Imports			196		266		343
Zaire							
GNP	4,822	3.0	5,269	3.1	6,138	3.8	7,396
Arms Imports			72		93		125
Sudan*							
GNP	5,892	3.0	6,438	3.1	7,500	3.8	9,038
Arms Imports			17		18		19
TOTAL AFRICAN ARMS IMPORTS			3,625		5,198		7,393

Table 4 (Cont'd)

COUNTRY ARMS IMPORT PROJECTIONS

Region/Country	1980		1985		1990		
	1977	1970-80 GNP Growth Rate**	Projec- tion	1980-85 GNP Growth Rate**	Projec- tion	1985-90 GNP Growth Rate**	Projec- tion
<u>EAST ASIA</u>							
Indonesia GNP	44,385	4.2	50,216 75	4.7	63,179 101	4.9	80,251 135
Arms Imports							
Malaysia GNP	12,625	8.0	15,904 86	7.0	22,306 125	7.3	31,726 181
Arms Imports							
Philippines GNP	20,614	8.0	25,968 67	7.0	36,421 98	7.3	51,803 144
Arms Imports							
Burma* GNP	4,215	4.2	4,769 4	4.7	6,000 4	4.9	7,621 4
Arms Imports							
Cambodia* GNP	614(1975)	4.2	695 95	4.7	874 95	4.9	1,110 95
Arms Imports							

Table 4 (Cont'd)

COUNTRY ARMS IMPORT PROJECTIONS

Region/Country	1980		1985		1990		
	1977	1970-80 GNP Growth Rate**	Projec- tion	1980-85 GNP Growth Rate**	Projec- tion	1985-90 GNP Growth Rate**	Projec- tion
East Asia (Cont'd)							
China, Taiwan*							
GNP	19,713	8.0	24,833	7.0	34,829	7.3	49,538
Arms Imports			160		160		160
Korea, North*							
GNP	9,030	5.2	10,513	4.6	13,164	4.5	16,405
Arms Imports			179		196		217
Korea, Rep. of*							
GNP	34,405	8.0	43,340	7.0	60,787	7.3	86,459
Arms Imports			389		501		665
Thailand*							
GNP	18,681	8.0	23,533	7.0	33,006	7.3	46,945
Arms Imports			58		58		58
TOTAL EAST ASIA ARMS IMPORTS			1,113		1,338		1,659

Table 4 (Cont'd)

COUNTRY ARMS IMPORT PROJECTIONS

Region/Country	1980		1985		1990		
	1977	1970-80 GNP Growth Rate**	Projec- tion	1980-85 GNP Growth Rate**	Projec- tion	1985-90 GNP Growth Rate**	Projec- tion
<u>LATIN AMERICA</u>							
Argentina							
GNP	50,334	5.8	59,610	5.5	77,908	6.3	105,742
Arms Imports			107		144		199
Brazil							
GNP	163,501		193,632		253,069		343,484
Arms Imports			181		241		331
Chile							
GNP	14,555		17,237		22,528		30,577
Arms Imports			102		155		235
Cuba							
GNP	6,318(1975)	5.2	7,356	4.6	9,211	4.5	11,478
Arms Imports			74		95		120
Ecuador							
GNP	6,011		7,119		9,304		12,628
Arms Imports			129		186		272
Mexico							
GNP	72,181		85,483		111,723		151,638
Arms Imports			18		26		38

Table 4 (Cont'd)

COUNTRY ARMS IMPORT PROJECTIONS

Region/Country	1977	1980		1985		1990	
		GNP Growth Rate**	Proje- ction	GNP Growth Rate**	Proje- ction	GNP Growth Rate**	Proje- ction
<u>Latin America (Cont'd)</u>							
Peru							
GNP	12,127		14,362		18,770		25,476
Arms Imports			288		425		633
Venezuela							
GNP	35,819		42,420		55,441		75,249
Arms Imports			111		150		209
Columbia*							
Arms Imported			17		17		17
TOTAL							
LATIN AMERICA							
ARMS IMPORTS			1,027		1,439		2,054

Table 4 (Cont'd)

COUNTRY ARMS IMPORT PROJECTIONS

Region/Country	1977	1980			1985			1990	
		GNP Growth Rate**	Projection	GNP Growth Rate**	Projection	GNP Growth Rate**	Projection		
MIDDEL EAST									
Iran GNP Arms Imports	75,257	8.4	95,859 2,724	5.3	124,101 3,741	5.8	164,515 5,196		
Iraq GNP Arms Imports	19,200	8.4	24,456 1,780	5.3	31,661 2,442	5.8	41,972 3,391		
Israel GNP Arms Imports	14,341	3.0	" 15,671 1,120	3.7	18,793 1,444	3.9	22,754 1,856		
Kuwait GNP Arms Imports	14,304	8.4	18,220 531	5.3	23,588 644	5.8	31,269 805		
Oman GNP Arms Imports	2,088	8.4	2,660 100	5.3	3,443 141	5.8	4,564 201		
Saudi Arabia* GNP Arms Imports	55,792	8.4	71,066 978	5.3	92,003 1,313	5.8	121,963 1,792		

Table 4 (Cont'd)

COUNTRY ARMS IMPORT PROJECTIONS

Region/Country	1980		1985		1990	
	1977	1970-80 GNP Growth Rate**	1980-85 GNP Growth Rate**	1985-90 GNP Growth Rate**	1990 Projection	
Middle East (Cont'd)						
Syria						
GNP	6,717	3.0		3.9	10,658	
Arms Imports			3.7		1,309	
Egypt*						
GNP	13,371	3.0		3.9	21,215	
Arms Import			3.7		361	
UAE*						
GNP	11,518	8.4	5.3	5.8	25,179	
Arms Imports					255	
TOTAL						
MIDDLE EAST						
ARMS IMPORTS						

Table 4 (Cont'd)

COUNTRY ARMS IMPORT PROJECTIONS

Region/Country	1980		1985		1990		
	1977	1970-80 GNP Growth Rate**	Projec- tion	1980-85 GNP Growth Rate**	Projec- tion	1985-90 GNP Growth Rate**	Projec- tion
SOUTH ASIA							
Afghanistan							
GNP	3,126	4.2	3,537	4.7	4,450	4.9	5,652
Arms Exports			95		125		163
India							
GNP	101,471	4.2	114,801	4.7	144,437	4.9	183,466
Arms Exports			524		702		936
Pakistan							
GNP	15,208	4.2	17,206	4.7	21,648	4.9	27,497
Arms Exports			213		275		357
TOTAL							
SOUTH ASIA			832		1,102		1,456
ARMS IMPORTS							
TOTAL - ALL REGIONS			15,107		20,399		27,728

* Not directly projected.

** Source: World Bank, World Development Report, 1980.

TABLE 5
REGIONAL ARMS IMPORTS AS A PERCENT
OF THIRD WORLD ARMS IMPORTS:
1965-1990
(Percentage)

<u>Year</u>	<u>Africa</u>	<u>East Asia</u>	<u>Latin America</u>	<u>Middle East</u>	<u>South Asia</u>
1965	9	55	4	13	11
1970	6	47	3	30	5
1975	16	22	6	43	4
1980*	24	7	7	56	6
1985*	25	7	7	56	6
1990*	27	6	7	55	5

* Projected

CHAPTER THREE: THE SUPPLY OF ARMS TO THE THIRD WORLD

Introduction

The last chapter of this paper dealt with Third World demand for arms. Various economic variables, particularly GNP, were found to be related to arms import demand. Based upon the relationship between GNP and arms import levels, projections of future arms demand were made.

This chapter discusses the sources of weapons which Third World countries have available to meet their future needs. In particular, the role of the United States as a major supplier of Third World weapons will be considered.

The chapter is divided into three sections. In the first, some comments are made on the nature of arms industries and the influence of government actions on arms transfers.

The second section presents historical market shares (the percent of arms supplied to a country or region by a particular supplier), with special note of the position of the United States as a supplier to the Third World. Based upon these shares and the demand projections provided in the previous chapter, the relative importance of the U.S. as an arms supplier in various regions of the Third World during

the next decade will be assessed.

The final section of the chapter focuses on past and current U.S. arms transfer policy. The Foreign Military Sales credit program is reviewed with emphasis on the present distribution of FMS credits.

Background

The Nature of Arms Industries and Arms Production

The nature of arms industries and arms production often influences the actions of the major supplying nations. For political reasons a country may decide to produce arms. Depending on the type of arms produced, that country may then export arms for economic reasons.

Weapons may be classified into two categories--inferior and superior arms. Inferior weaponry refers to equipment which can be produced using little capital investment or skilled labor. Such equipment is often simple to use and easy to produce. Rifles, canteens, uniforms, grenades and mortars are examples of inferior military equipment. Since inferior equipment is easily manufactured, evidences only moderate economies of scale in production, and is required by even the most rudimentary armed forces, it will often be

produced internally by even low income countries. There is little need for export of this equipment, because economies of scale are not significant. Indeed, because most countries supply these weapons for themselves, there is little market for the marginal supplier.

Superior weapons, on the other hand, require large capital investment, skilled labor, high research and development expenditures, and quality resource inputs. Examples of superior weapons include aircraft and missiles, ships, armored vehicles and tanks, electronic detection equipment, and artillery. Due to the high fixed costs incurred in the production of this equipment (particularly research and development outlays), the unit costs of superior weapons can be lowered significantly by increasing the number of units built.

The developed countries have a comparative advantage in the production of superior arms. Possessing capital, trained labor, and expertise in producing technologically advanced goods, the European countries, the United States, and the U.S.S.R. have the capability to manufacture superior weapons. However, in order to make these arms affordable, long production runs are required. If internal demand is insufficient to justify these runs, as in many European nations, the additional arms produced must be exported to

countries which do not have the ability to produce these weapons.

The Third World countries are obvious candidates to import superior weapons. Since most Third World nations cannot produce superior weapons internally or require substantial assistance in the form of coproduction or licensing agreements, they must import their superior weapons from the developed world. The arms manufacturers in the developed world realize that, by exporting more arms, they can decrease their unit costs, thus lowering the prices they must charge. Thus, the arms manufacturers compete vigorously for sales to the Third World.

The above discussion partially describes the present supply situation in the Third World Arms Market. However, an important factor in arms manufacturing, exportation and purchasing has been neglected--the role of supplier and recipient governments.

Government Influences on Arms Transfers

Governments exert considerable influence on both the supply and demand sides of the Third World arms market. Depending on the policies of the governments involved, arms

transfers between two countries may be hindered or aided.

Governments of countries with major arms supplying industries are interested in arms transfers for national security, foreign policy, and economic reasons.

From a national security standpoint, the exportation of arms to another country could impose two future problems: 1) due to a radical change in the demanding country's government, the exported arms could be used against the supplying nation ; or, 2) advanced weapons could be transferred to a supplying country's antagonist. Once transferred, countermeasures which render the weapon ineffective could be developed. Both the U.S. and the U.S.S.R. confronted this situation in the Middle East war. Since this damages the ability of a supplying nation to provide for its national security, limits are sometimes placed upon suppliers as to the countries which they may supply and the weapons they may export.

More often, however, weapons exports are used as an instrument of foreign policy. In cases where a country receives arms from a single supplier, that supplier has considerable control over the foreign policy actions of the country involved. The 1965 Indo-Pakistan war, in which the U.S. embargoed arms sales to Pakistan, illustrates this situation. After the embargo, Pakistan accepted a

ceasefire.²

Three noted analysts have commented on the political significance of arms transfers.

William B. Quant, in his study, Influences through Arms Supply: The Middle East, found:

Our rapid survey of a number of important cases of U.S. arms relations with Israel, Iran and Turkey has suggested that arms supply can provide an effective basis for influence in some circumstances . . .

On balance, it appears that decisions on military operations or policy concerning war and peace are the categories most likely to be influenced by an arms supplier if he chooses to make the attempt. In addition, it is probably easier to deter action than to reverse it, and to reverse undeclared policies than publicly stated ones. Arms recipients are more vulnerable to influence attempts in the midst of crises that pose serious threats to their security than in normal times; arms clients who do not control access to bases or other strategic assets of the patron are likely to be more vulnerable than others.

Finally, if any pattern of arms supply seems conducive to successful influence attempts, it is a suspension of an ongoing arms supply relationship, followed by a negotiated resumption of the flow of arms as a quid pro quo, more or less explicitly stated, for some specific change of policy on the part of the arms recipient. Neither the uninterrupted supply of arms nor a prolonged boycott seems as likely to produce positive results as the demonstration that the tap can be turned on and off in response to the client's posture with respect to specific demands of the patron.³

Quant thus determined that a country's dependency on an arms supplier can provide the supplier with some influence

in the demanding country. The degree of control depends to a large extent on the circumstances of the situation.

Laurel A. Mayer provides other "control" determinants which may explain the degree of supplier influence: "Ultimately an ability [to exert leverage over recipient actions] can rarely be attributed exclusively to an arms supplier dependency, but rather to a series of additional factors--including trade, economic aid, investment, treaty commitments, military strength, ideology, and geographic proximity--which collectively determine the patterns of influence among states."⁴ Nonetheless, Mayer concludes: "This qualification stated, arms still remain an important tool in seeking political influence."⁵

Finally, Anne H. Cahn, a prominent author, confirms: "political influence is most frequently cited as a rationale for arms sales."⁶

In order to gain or maintain this influence, supplying countries often provide substantial amounts of military aid to developing countries. Henry Kissinger was noted for his use of such aid to gain foreign policy objectives:

Kissinger held [military] aid to be vital to U.S. influence abroad--to preserving ties with allies, forging more rational relationships with its adversaries, maintaining regional balances of power, and creating a new era of cooperation with all nations.

In addition to political influence gained by arms sales and military aid, domestic economic needs, particularly of indigenous defense industries, often drive arms supplying nations. Along with long production runs, most developed countries desire excess weapons production capacity. In time of war, defense production can be increased to replace combat losses. In peacetime, however, underutilized defense industries waste capital and resources. If arms are produced for export, some of the losses can be recouped. With longer production runs and the utilization of excess defense manufacturing capacity, arms procured by the supplying country for its own defense needs are less expensive.⁸

The economy in general is also aided by arms exports. Jobs are created and GNP is increased. As with any export industry, arms sales abroad decrease balance of payments deficits and increase foreign exchange earnings. Thus, "weapons production provides domestic employment, aids in helping to create a more favorable balance of trade, and may assist in opening foreign markets for non-military goods."⁹

In short, national security needs, foreign policy objectives, and economic arguments influence the governments of countries which export large quantities of sophisticated arms.

The governments of countries which import high technology military equipment also have various concerns. These include: the foreign policy implications of buying weapons from a given supplier, the stability of the supplier (especially when that supplier is the country's sole source of ammunition and spare parts), the cost of the weapons imported including the ability to receive grant aid and financing, and the supplier's willingness to allow technology transfers and coproduction facilities.

In receiving a large proportion of her arms from a particular supplying nation, a country is often presumed to be "aligned" with the ideological, economic, or political system of the supplier. Thus, Israel and South Korea are "aligned" with the United States, while Iraq, Algeria and North Korea are aligned with the Soviet Union. Non-arms trade links are frequently strong between aligned nations and their suppliers, and military alliances are often formed. In order to gain this increased trade and security assistance, the demanding country must relinquish some of its foreign policy independence to the arms supplying country. By using multiple suppliers, independence may be retained; however, significantly higher logistical and support costs are incurred.

The stability of the supplier is also an important

criteria which influences a demanding government's choice of arms supplier. Stability refers not only to the quality of the arms purchased and reliability of the supplier in fulfilling contracts, but also the past history of the supplying government's use of arms embargoes to affect regional conflicts. Obviously, a supplier who frequently halts arms sales to a customer in a time of need will be avoided.

The cost of the imported weapons is a third determinant of a demanding government's choice of suppliers. Cost includes both the "gross" price of the weapon and the weapon's "net price" when financing terms and grant aid are provided. The arms demanding government must, of course, take into account the political ramifications of accepting military aid. Where these considerations are not significant, financing terms may be a deciding influence in a demanding government's choice of supplier.

Finally, an arms demander may choose a particular supplier due to that supplier's willingness to transfer the expertise needed to indigenously produce a weapons system. This transfer may take place through the use of coproduction or licensing agreements. The International Institute for Strategic Studies has noted the importance of a willingness to transfer this expertise: "The transfer of technology for

producing weapons is. . . as important a phenomenon as the transfer of the weapons themselves."¹⁰ A supplying country which strictly limits the exportation of technology may lose sales if the countries which demand arms require coproduction contracts as a term of purchase.

Thus, countries which demand arms are influenced in their choice of suppliers by such factors as the alignment incurred when purchasing arms from a particular country, a country's dependability as an arms supplier, the financing and aid which a supplying government will provide, and the willingness of the supplier to enter into coproduction agreements.

The economic and political aspects of arms transfers noted above provide some insight into present patterns of arms supply and demand in the Third World.

In the next section of the paper, these patterns are described using market share figures. The shares of the U.S. and other major suppliers in the Third World arms market are presented on a global, regional, and country basis.

The Market Position of the United States in the Third World Arms Market

This part of the paper assesses the relative market position of the United States in the Third World vis-a-vis the other major arms suppliers (the U.S.S.R., France, the U.K., West Germany, and Italy).

Market position can be measured by relative market share, defined as the percentage of arms supplied to a recipient by a specific nation. The arms transferred can be measured by type (number of tanks, missiles, aircraft, etc.) or by dollar value.

In this paper, market share is found using the value rather than the type of weapons transferred. This is done for two reasons: 1) to maintain consistency with the demand projections provided in Chapter Two; and 2) to take into account the quality of the weapons transferred. While quality cannot be precisely equated with value, dollar amounts at least provide a measure of the perceived utility of the equipment purchased.

The market share figures are derived from ACDA WMEAT data for the period 1965 to 1978. The first three periods are ten year averages, while the latter two periods are five year averages. While this inconsistency is due primarily to the form in which the ACDA data is presented,

it is useful because the numerous changes in market share which have occurred over the past decade are better reflected.

Market share information is presented first globally, then regionally, and finally, by country.

Table 6 shows the percent of the entire Third World market accounted for by each supplier for the five time periods. The percent of the market accounted for by the U.S. and the P.R.C. has declined, while the market shares of the U.S.S.R., France, the U.K., and the Federal Republic of Germany have increased.

Table 7 shows a breakdown of supplier market share by region. The market share of the United States has increased slightly in the Middle East, remained constant in East and South Asia, and decreased significantly in Africa and Latin America. The market share of the Soviet Union has increased in Africa, Latin America, and South Asia, while declining in East Asia and the Middle East. Both France and the U.K. have lost market share in Africa, but have increased their share of the East Asian and Middle East markets. The FRG and Italy have increased their market share in almost all of the regions; however, their individual percentage in any one market does not exceed ten percent.

While market shares have changed in the five regions,

TABLE 6
THIRD WORLD ARMS IMPORT MARKET SHARE
(Percent)

<u>Year</u>	<u>U.S.</u>	<u>U.S.S.R.</u>	<u>France</u>	<u>U.K.</u>	<u>P.R.C.</u>	<u>F.R.G.</u>
1965-1974	53	29	4	3	5	2
1966-1975	54	28	4	3	2	0
1967-1976	52	27	5	3	4	2
1973-1977	41	32	6	5	2	4
1974-1978	36	34	7	5	1	4

ACDA: WMEAT

TABLE 7

SUPPLIER MARKET SHARE IN THE THIRD WORLD
(percentage)

	U.S.	U.S.S.R.	France	U.K.	Fed. Rep. of Germany	Italy	Other
<u>Africa</u>							
65-74	14	29	27	10	3	-	17
66-75	11	34	24	7	1	-	23
67-76	8	40	20	4	4	-	24
73-77	6	47	15	2	5	4	21
74-78	4	56	11	1	4	4	20
<u>East Asia</u>							
65-74	70	19	-	1	-	-	10
66-75	73	17	-	1	-	-	9
67-76	74	15	-	1	-	-	10
73-77	75	12	1	4	1	-	7
74-78	71	12	1	5	1	1	9
<u>Latin America</u>							
65-74	34	13	19	11	6	-	17
66-75	32	14	18	12	-	-	24
67-76	30	15	16	14	8	-	17
73-77	18	29	13	16	9	4	11
74-78	17	32	10	15	9	5	12
<u>Middle East</u>							
65-74	42	43	3	4	1	-	7
66-75	45	38	3	5	-	-	9
67-76	48	34	4	5	2	-	7
73-77	45	32	6	5	3	1	8
74-78	48	26	6	7	3	2	8
<u>South Asia</u>							
65-74	5	58	9	3	1	-	24
66-75	4	60	9	3	1	-	23
67-76	4	53	11	3	-	-	29
73-77	5	61	10	3	1	2	18
74-78	5	65	9	3	1	-	17

the importance of the regions as arms purchasers has also fluctuated. Table 8 shows that Africa and the Middle East have become and will continue to be the predominant arms importers, while the relative amount spent on arms in East and South Asia is declining. Latin America, meanwhile, showed some increase in relative importance.

When the results of Tables 7 and 8 are combined, the aggregate influence of the U.S. as an exporter of arms to the Third World appears to have declined significantly. The market share of the U.S. in Africa has substantially declined, while the amount of arms imported by Africa has increased. In East Asia, the U.S. has maintained a high market share; however, the proportion of the arms market accounted for by East Asian purchases has declined. Latin America has become a more important arms demander, but the percent of arms purchased from the U.S. has declined.

The Middle East provides one promising region with respect to U.S. sales. While the Middle East has increased its arms purchases to the point of being the largest arms importer, the countries of the Middle East have increased the percentage of arms they purchase from the U.S. These figures, however, include arms purchased from the U.S. by Iran. With the loss of the Iranian market, the relative influence of the U.S. in the region may be lessened.

TABLE 8
REGIONAL ARMS IMPORT DEMAND

<u>Year</u>	<u>Africa</u>	<u>East Asia</u>	<u>Latin America</u>	<u>Middle East</u>	<u>South Asia</u>
1965	9	55	4	13	11
1970	6	47	3	30	5
1975	16	22	6	43	4
1980*	24	7	7	56	6
1985*	25	7	7	56	6
1990*	27	6	7	55	5

* Projected

E.B. Rex

The Third World Arms Market

In South Asia, the U.S. has maintained its market share, while the percent of the market accounted for by South Asia's imports has declined. This situation is analogous to that of the U.S. in East Asia.

Thus, on a regional basis, the market share of the U.S. has declined in two regions, stayed the same in two, and increased in one. U.S. market share has increased slightly in one of the now major arms importing regions (the Middle East) while declining significantly in the other (Africa).

Table 9 provides a description of changes in supplier market share on a country basis.¹¹ U.S. share has declined in thirteen countries and increased in ten. The U.S.S.R. has seen its market share decline in eleven nations, while increasing in six. Of the European producers, the West Germans and Italians display the greatest number of increasing share countries (fifteen and twelve respectively) while the U.K. has exhibited the most declines (fourteen).

Within regions, the U.S. has seen its market share decrease in most of the countries in Africa and Latin America, while U.S. share has increased in most of the countries in the Middle East (except Iraq, Oman, and Syria).

In short, based upon global, regional and country market share analysis, the following conclusions may be reached:

TABLE 9
COUNTRY MARKET SHARE CHANGES: 1965-1978

	U.S.	U.S.S.R.	FRANCE	U.K.	WEST GERMANY	ITALY
AFRICA	D	I	D	D	I	I
Algeria	-	D	D	-	*	*
Angola	-	D	*	D	*	-
Ethiopia	D	I	D	D	D	*
Libya	D	I	D	D	*	I
Morocco	D	*	I	*	*	*
Nigeria	I	I	I	D	D	I
South Africa	D	-	*	D	-	I
Sudan	I	D	*	*	I	-
Zaire	D	-	I	-	D	-
EAST ASIA	*	D	I	I	I	-
Burma	D	-	D	I	I	-
Cambodia	*	-	-	-	-	-
China, Taiwan	*	-	-	-	-	-
Indonesia	*	D	-	D	I	-
Korea, North	-	D	-	-	I	-
Korea, Rep. of	D	-	-	-	I	I
Malaysia	I	-	*	D	I	-
Philippines	D	-	-	I	I	I
Singapore	I	-	I	D	D	-
Thailand	D	-	-	*	*	-
LATIN AMERICA	D	I	D	I	I	I
Argentina	D	-	*	I	D	*
Brazil	D	-	D	I	I	I
Chile	*	-	*	D	*	-
Colombia	*	-	*	D	I	-
Cuba	-	*	-	-	-	-
Ecuador	D	-	I	*	I	-
Peru	D	I	D	D	D	I
Venezuela	I	-	D	I	I	I
MIDDLE EAST	I	D	I	I	I	I
Egypt	I	D	I	I	I	I
Iran	I	D	I	D	I	I
Iraq	-	D	I	D	I	I
Israel	*	-	D	*	-	-
Kuwait	I	I	*	D	D	-

Table 9 (Continued)

	U.S.	U.S.S.R.	FRANCE	U.K.	WEST GERMANY	ITALY
Middle East (Continued)						
Oman	*	-	-	I	-	-
Saudi Arabia	I	-	D	*	*	I
Syria	-	D	I	-	I	-
SOUTH AFRICA						
Afghanistan	-	D	-	-	-	-
Bangladesh	-	*	-	I	-	-
India	*	I	*	D	D	-
Pakistan	I	D	I	*	*	-

Key: I = increasing market share.
D = declining market share.
* = no perceptible trend
- = ∅ market share

1. For the period 1965 to 1978, the percentage of the Third World arms market accounted for by the U.S. has declined from fifty three percent to thirty six percent.

2. During the same period, the portion of the market accounted for by the Soviet Union, France, the U.K., and West Germany has increased.

3. Regionally, the U.S. has lost market share in Africa and Latin America, held approximately the same share in East and South Asia and slightly increased its share of the market in the Middle East.

4. The market share of the Soviet Union has increased in three regions (Africa, Latin America, and South Asia) and declined in two (East Asia and the Middle East) during the same period.

5. Except for the United Kingdom in Africa, the European supplying nations have maintained or increased their market share in all regions.

6. In the two largest arms importing regions, Africa and the Middle East, U.S. market share has declined or increased slightly, respectively.

7. On a country basis, U.S. market share during the period has declined in thirteen nations and increased in ten.

Thus, on a global, regional, and country basis, the percentage of the Third World Arms Market accounted for by the U.S. over the past fifteen years has declined.

As stated previously, a government's arms transfer policy may have an effect on the country's arms sales

abroad. The next section of the paper provides an overview of past and current U.S. arms transfer policies.

United States Arms Transfer Policy

The arms transfer policy of the U.S. government is set forth in several legislative acts and Presidential policy directives. Laws related to arms transfers include: the Mutual Security Act of 1954, the Foreign Assistance Act (FAA) of 1961, the Foreign Military Sales Act of 1968, and the International Security Assistance and Arms Export Control Act (AECA) of 1976. The Mutual Security Act gives the President responsibility for controlling U.S. arms transfers, while the other three laws describe U.S. government policy and procedures with respect to military assistance grants and loans, and U.S. arms export controls.

In addition to these Congressional declarations, Presidential directives and statements further define U.S. arms transfer policy. Three of the most recent and important include: Presidential Directive 13 (PD 13), made by President Carter on May 9, 1977; the Presidential Statement of February 1, 1978, and the Presidential Statement of January 4, 1980.

By reviewing these laws and statements, both the historical basis for present arms transfer policy and the present U.S. arms transfer policy may be determined.

The Mutual Security Act of 1954 tasked a specific branch of the government with the responsibility of controlling arms transfers. In this law, the President is held responsible for controlling "the export and import of arms, ammunition, and implements of war, including technical data related thereto."¹² The act requires the President to define the term "implements of war" and use his authority to insure that weapons are transferred "in furtherance of world peace and the security and foreign policy of the United States."¹³ Thus, the Executive Branch, with the approval of Congress, is responsible for formulating U.S. arms transfer policy.

In 1961, the Foreign Assistance Act (FAA) was passed by the U.S. Congress. Given the then present Cold War, the FAA was an attempt to coordinate all aspects of foreign assistance programs currently being implemented by various branches of the government. The Executive and Legislative branches felt that, if all sources of foreign aid could be viewed simultaneously, a coherent aid policy which would more effectively deter Communist aggression could be developed.

Section II of this Act deals specifically with military aid. It expands the scope and clearly defines the use of the Military Assistance Program. This program was started at the end of World War II and from 1946 to 1948 provided over 450 million dollars worth of surplus arms to war ravaged Europe.¹⁴

According to the Act, military assistance "involves the loan or outright grant to foreign countries of military equipment, facilities, technical assistance, repair and rehabilitation, supply operations support, and administrative support."¹⁵ This aid should be given to meet "the needs of those countries in danger of becoming victims of active Communism or Communist supported aggression."¹⁶

With later easing of Cold War tensions, different rationales for the granting of military aid were developed. As stated in a recent Congressional report on security assistance programs:

grant military assistance programs have been requested for the following purposes: to retain U.S. military base rights; to maintain regional arms balances and thus contribute to regional stability in areas important to the U.S.; to encourage greater military self-reliance on the part of certain nations; to promote favorable bilateral relations; to establish and maintain rapport with the military leaders of foreign countries in order to provide channels of communications,

dialogue, and influence which are valuable to the U.S. Government for diplomatic and commercial, as well as military reasons; to provide tangible evidence of U.S. support; to maintain internal security and contribute to self-defense capabilities; to preclude arms aid and sales by other nations; to insure the survival and security of nations to whom the U.S. committed [sic]; to contribute to the stability of friendly regimes; to contribute to internal development by assisting the military forces in less developed friendly countries to construct public works and engage in other activities helpful to their economic and social development.¹⁷

These same reasons continue to provide explanations for U.S. implementation and funding of security assistance programs.

With the increasing development of Third World economies during the late 1960s, the feeling of the Congress was that Third World nations could now afford to purchase the arms they previously received under grant aid programs. Because of this feeling, the Foreign Military Sales Act was passed in 1968.

This act clearly separated arms sales legislation from grant aid legislation and reflected the declining role of grant aid in U.S. arms policy.

Under this Act, the Foreign Military Sales program was formed. The FMS program consists of two distinct parts: 1) the procurement and sale of weapons on a government-to-government basis; and, 2) the furnishing of loans (FMS credits) to specific countries. These loans are then used to

purchase defense equipment from the U.S. This law manifested the desire of the Congress to "wean" developing countries from grant aid by providing an easy means of obtaining arms through low cost, U.S. government backed loans. In addition, by selling arms through the government, arms transfers could be easily monitored and controlled.

The FMS program has grown from 1.6 billion dollars in sales and 700 million dollars in credit in FY71 to over 13 billion dollars in sales and 6 billion dollars in credit in FY79. Grant aid, on the other hand, has declined from 5.7 billion dollars in FY52 to less than 220 million dollars in 1979. These trends are displayed in Figure 2.¹⁸

Many of the provisions of the FMS Act were included in the next major piece of arms control legislation--the International Security Assistance and Arms Export Control Act (AECA) of 1976 (PL94-329). This law is the basis for current arms sales and financing policies.

With respect to arms sales, the AECA allows for the:

transfer of arms, other military equipment, and various services through government-to-government agreements. Under this program, the Department of Defense purchases military equipment or services from United States firms, or takes equipment to be sold from U.S. stocks (under some circumstances) and sells the equipment or services to a foreign government or sells the services of DOD personnel such as training or management advice. ¹⁹

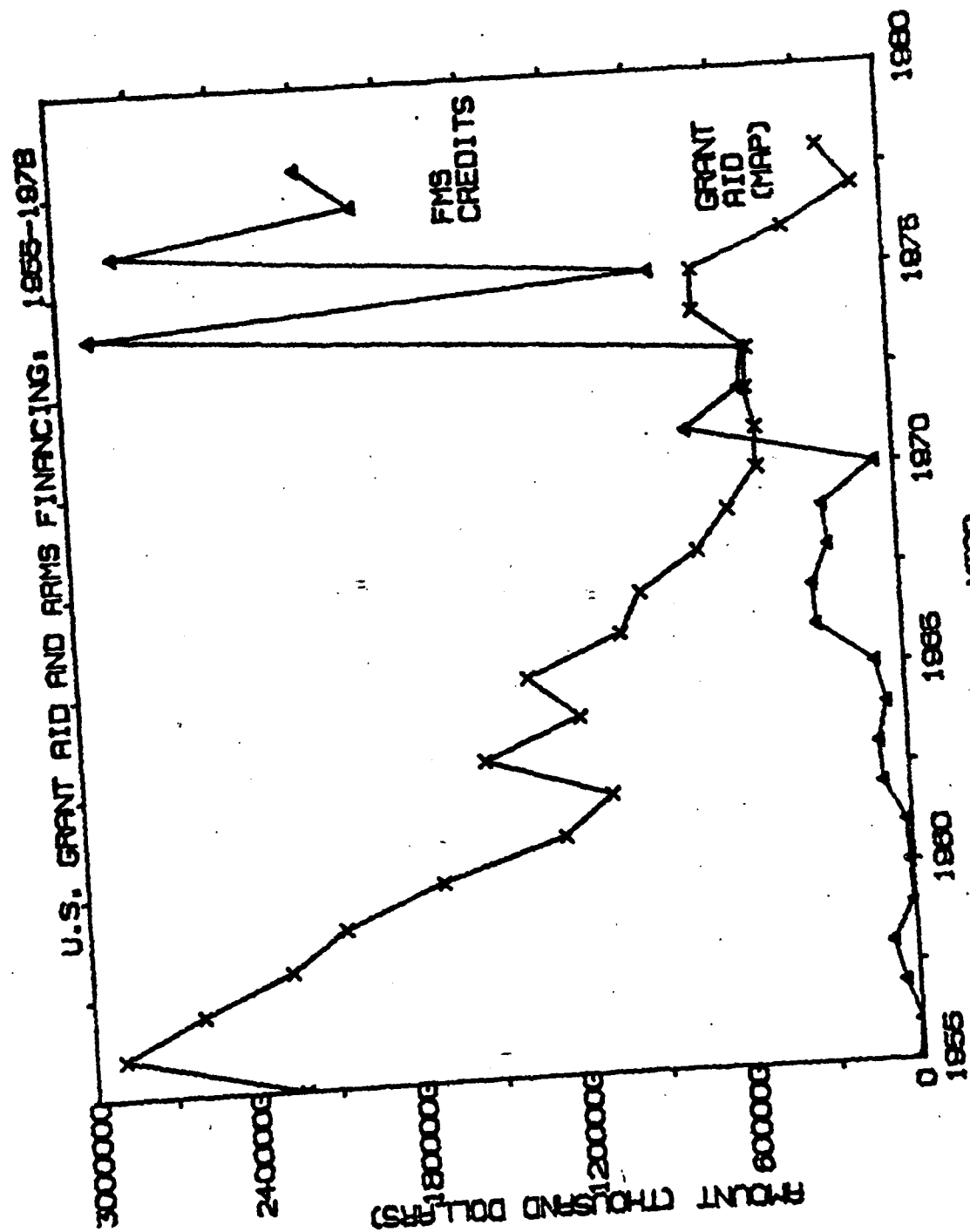


FIGURE 2

As written, the "sales" portion of the AECA is at no cost to the U.S. government; administrative costs are paid by the purchasing government.²⁰

While FMS sales constitute the majority of U.S. arms transfers, commercial weapons sales are also controlled by the AECA. Section 38 of the AECA directs that "no defense articles or services designated by the President may be exported or imported without a license issued in accordance with the AECA."²¹ This section further requires that "sales of 25 million dollars or more to other countries are prohibited through commercial channels and must be conducted . . . under the FMS program."²² Coproduction agreements approved by the Congress and sales to NATO, Australia, New Zealand, and Japan are exempt from this requirement.²³ In addition, State Department approval must be obtained for any commercial transaction in which more than 7 million dollars in combat equipment is transferred.²⁴

Arms credit is discussed in Section 23 of the AECA. The President has the authority to "finance procurement of defense articles and services or to guarantee financing for friendly foreign countries or organizations."²⁵ Based upon this authority, three types of financing may be provided: DOD guaranteed credit, DOD direct credit, and Export-Import Bank direct credit.

DOD guaranteed credit allows the Federal Financing Bank (the exclusive source of DOD guaranteed financing) to guarantee loans "against political and credit risks of non-payment." ²⁶ This type of guarantee requires DOD to set aside ten percent of the principal as a reserve to cover the forfeiture of any loans. The charge for this type of loan is one-fourth of one percent of the principal.

In the case of DOD direct credit, the Department of Defense finances arms purchases out of its appropriated funds. Since all of the principal must be appropriated when direct credits are provided and only ten percent of the principal is required for guaranteed loans, the Department of Defense clearly desires to use guaranteed credits for arms sales whenever possible. The growth in the use of guaranteed credits is shown in Figure 3.

The final source of direct credit, the Export-Import Bank, is available only to developed countries. Section 32 of the AECA prohibits the Bank from providing arms credits to the LDCs. In practice, the Export-Import Bank does not allow military assistance loans, even to developed nations. ²⁷

Section 23 of the AECA sets the repayment period and interest rates for the credits granted by the President. All credits must be repaid within twelve years after the delivery of the weapons. In some instances, the Defense

AD-A109 992

NAVAL ACADEMY ANNAPOLIS MD

F/8 5/3

THE THIRD WORLD ARMS MARKET IN THE 1980'S: IMPLICATIONS FOR U. --ETC(U)

JUN 81 E B REX

NL

UNCLASSIFIED

USNA-TSPR-114

2nd 2
E B REX

2

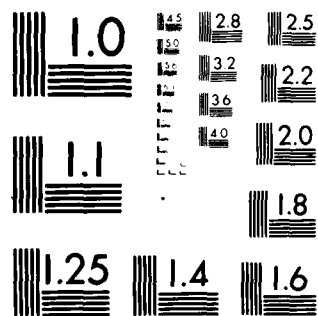
END

DATE

FILED

13-82

DTIC



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

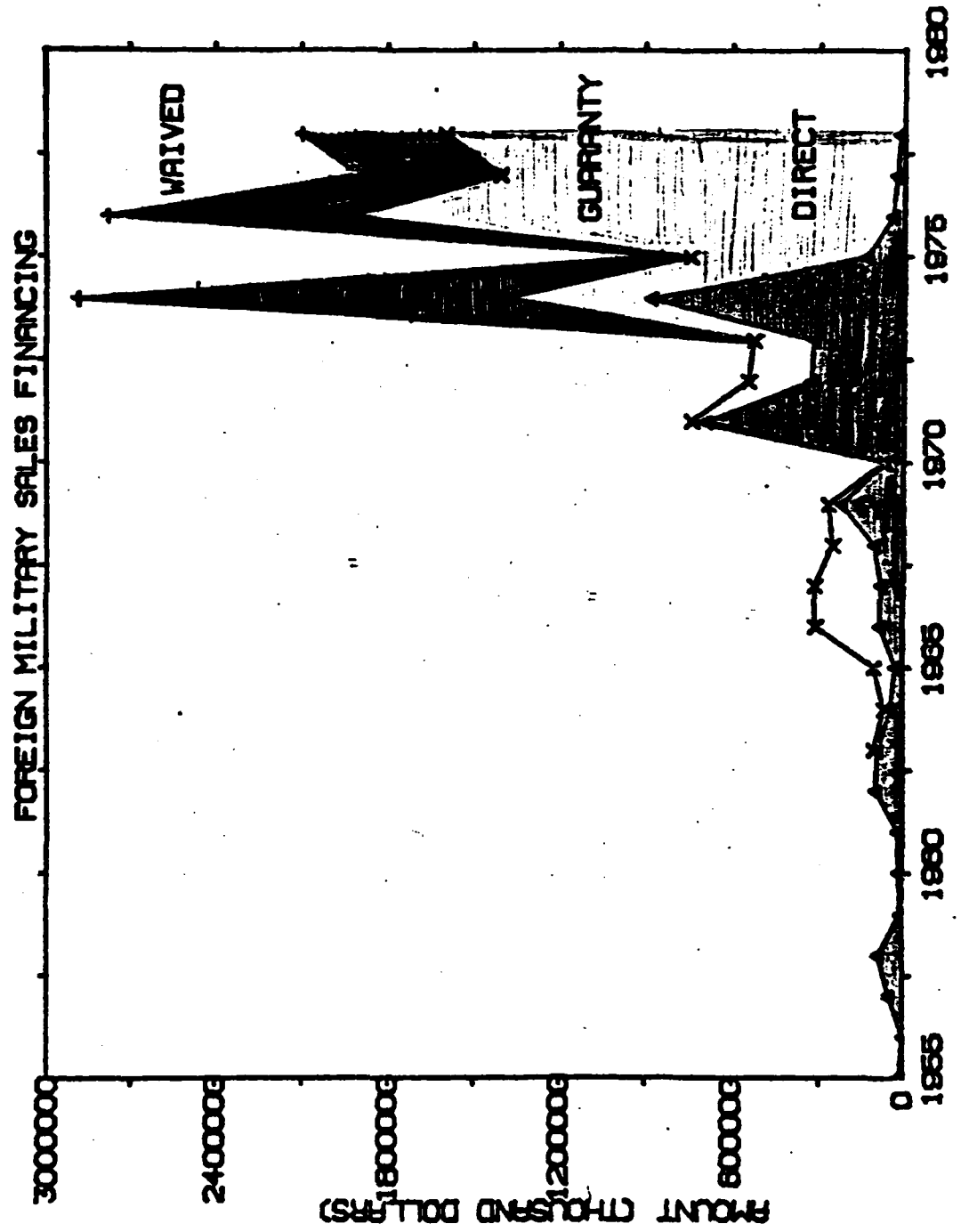


FIGURE 3

Department requires earlier repayment. The interest rate charged is dependent upon "the current average interest rate . . . that the U.S. government pays on outstanding marketable obligations of comparable maturity." ²⁸ The President may allow a lower rate of interest. A decreased rate, however, must be warranted by national security interests.

Both the sales and credit provisions of the AECA are controlled by numerous legislative restrictions written into various sections of the Act. Arms sales are denied to military dictators (except in extraordinary circumstances), countries which aid terrorist activities, and countries which divert development aid to military uses. Also, credits are denied to underdeveloped countries for use in purchasing sophisticated weapons systems, while limitations are placed on the use of credits to finance coproduction facilities. Finally, Chile and Argentina may not purchase arms under the FMS program, and no credits may be granted to Argentina, Brazil, El Salvador, Guatemala, Cuba, Ethiopia, Uganda, Cambodia, Laos, the Socialist Republic of Vietnam, Mozambique, or Angola. ²⁹

In essence, the Arms Export Control Act provides the legal basis for the Foreign Military Sales and Credit program. The Act delineates who may purchase arms, who may

receive financing for weapons purchases, modes of financing, and restrictions on the use of the FMS program. In concert with the other laws mentioned previously, the AECA provides the bulk of legislative action dealing with U.S. arms transfer policy.

In addition to ongoing Congressional declarations, statements made by the President clarify and refine various aspects of the U.S. arms policy. Three statements made by President Carter have significantly influenced the arms transfer policies of the U.S. government. The first statement, made by the President on May 19, 1977, stressed that "the United States must take steps to restrain its arms transfers" and that the United States will "henceforth view arms transfers as an exceptional foreign policy implement."³⁰ In his statement, the President established numerous restraints on arms transfers. Briefly, these include:

1. The dollar volume of new commitments under the FMS program will be reduced.
2. The U.S. will not be the first supplier to introduce sophisticated weapons into a region.
3. The incentive to promote foreign sales in an effort to lower unit costs for DOD procurement shall be removed.
4. Advanced weapons developed solely for export are prohibited.
5. Coproduction agreements are prohibited.

6. Retransfer of U.S. equipment is not permitted.

7. Embassies and military representatives may not promote the sale of arms abroad.

President Carter's directive applied to all transfers except those to NATO, Japan, Australia, and New Zealand, thus, his policy specifically affects the countries of the Third World.

The President's statement, known as Presidential Directive 13 (PD 13), met with much controversy both in the U.S. and abroad. While the President was praised for his interest in curbing arms sales, he was criticized for various decisions which exempted several major arms purchases from the provisions of PD 13. These exceptions included the sale of sophisticated AWACS planes to Iran, the sale of F-15s to Saudi Arabia, and the granting of 800 million dollars in military aid to South Korea in 1977.³¹

Due to the criticisms which PD 13 was receiving, the President felt a reaffirmation of the PD13 principles was required. On February 1, 1978, President Carter issued another statement on arms transfer policy. In this statement, the President established new arms sales ceilings and reiterated the PD 13 restraints placed on "the sophistication of arms being transferred and on the spreading capability to produce armaments."³²

In April of 1979, the Chairman of the Senate Foreign Relations Committee expressed his belief that "it was timely for the committee to begin to consider possible alternatives to the current U.S. arms transfer policy."³³ The Foreign Relations Committee received extensive testimony on the subject of arms transfers and issued its report in March, 1980. The report stated that the "Carter arms transfer policy was beset with difficulties, in part because the policy had been oversold,"³⁴ and declared "sales continue to be made at previous levels with only slight restraint shown."³⁵ The Committee asserted their belief that, because of the arms sales restrictions of PD 13, "the value of U.S. arms sales agreements in nominal terms remained fairly constant [from 1974 to 1979], resulting in a reduction in real terms."³⁶ Meanwhile, "the West Europeans, particularly the French and British, have significantly increased their percentage of arms sales contracts to the Third World."³⁷ In addition, "the Soviet Union . . . has also significantly increased its sales to the Third World since 1976 and had a record year in 1979."³⁸

The Foreign Relations Committee concluded:

The Committee continues to find the objectives of restraint worth pursuing, but it finds that attaining these objectives is difficult in the absence of support from the other major suppliers of the world.

Therefore, the Committee believes that the United States should adopt a balanced policy, which combines elements of restraint with an understanding that prudent arms transfers can serve important foreign policy and national security functions. ³⁹

While the Senate Committee was preparing its report, the President, on January 4, 1980, removed two PD 13 arms transfer restrictions. Coproduction agreements and the development of export only weapons are now permitted.⁴⁰ This change was made based upon the recommendations of both the State Department and the Congress. The other constraints described in PD13 are in effect and may only be withdrawn on a case-by-case basis.

In short, the basis for current U.S. arms transfer policy lies in the laws passed by the Congress and the policy statements made by the President. At present, the gist of U.S. policy is presented in two documents: the Arms Export Control Act of 1976, and Presidential Directive 13. The AECA authorizes the Foreign Military Sales and Credit program and reduces the significance of the Military Assistance Program. It also provides procedures by which arms transfers abroad may be sanctioned. PD 13 sets specific restrictions on the exportation of arms abroad and reflects the desire of the Carter Administration to lessen such sales if possible.

This section of the paper has described the arms transfer policy of the United States, both in the recent past and at present. Various restraints on U.S. arms transfers were described and comments on the influence of Congress and the President in establishing policy were made.

The next portion of the paper deals specifically with the Foreign Military Sales credit program. The relationship between arms credits and market share is examined and the present distribution of FMS credits is reviewed.

U.S. Military Assistance and U.S. Market Share

Security assistance has been an important instrument of United States foreign and national security policy for more than three decades. The essential purpose of the Security Assistance Program is to strengthen the security of the United States by enhancing the defense posture of nations with which we share political and military interests. Through carefully selected sales, grants, and training assistance, the United States has enabled friendly states to participate in and share the burdens of collective security.⁴¹

This portion of the paper attempts to determine the recipients of this assistance and to reach some conclusions regarding the effect of Foreign Military Sales financing on U.S. market share in various regions and countries in the

Third World.

In FY 1979, approximately 655 million dollars were appropriated by Congress to provide funding for the FMS credit program. This sum permitted the financing of about 5.5 billion dollars worth of aid to twenty-six countries. During the period 1972 to 1978, over 11.5 billion dollars in financing was made possible. Of this amount, 3.5 billion dollars (primarily loans to Israel) was forgiven. 42

Table 10 shows U.S. market share and levels of FMS financing on a regional basis. U.S. market share is found by adding U.S. commercial sales data, FMS delivery data (weapons only) and the value of equipment supplied under the MAP and MASF programs, and dividing that sum by regional totals given in ACDA WMEAT. Total U.S. funding and grants include total FMS credits (direct, guaranteed, and waived) and MAP/MASF equipment.

Not surprisingly, the areas which have received the largest percentage of arms credit also have high U.S. market share figures. What is surprising, however, is the fact that the bulk of U.S. credits go to two regions, East Asia and the Middle East, while the other three regions receive only nominal amounts. South Asia has not received any FMS/MAP funding, while Africa and Latin America have been given less than ten percent of total U.S. military aid

TABLE 10
 U.S. MARKET SHARE AND U.S. ARMS FINANCING
 BY REGION: 1972-1978
 (Millions U.S. Dollars)

Region	Total Arms Imported	U.S. Arms Imported	Percent of Region	U.S. Grants+ Funding	Percent Of Total Grants+ Funding
<u>AFRICA</u>					
1972	460	14	3	29	3
73	485	9	2	22	2
74	770	14	2	25	1
75	1,410	20	1	59	5
76	2,585	58	2	125	4
77	3,150	136	4	114	7
78	5,245	182	3	120	7
<u>EAST ASIA</u>					
1972	3,670	1,977	54	587	56
73	3,955	2,767	70	557	56
74	1,890	1,353	72	729	22
75	1,895	1,457	78	644	52
76	905	754	83	668	23
77	935	569	61	357	21
78	1,225	878	72	409	23
<u>LATIN AMERICA</u>					
1972	380	70	18	79	8
73	565	67	12	85	9
74	450	71	16	139	4
75	585	112	19	180	15
76	965	187	19	270	19
77	1,075	188	17	107	6
78	1,070	107	10	97	5
<u>MIDDLE EAST</u>					
1972	1,975	560	28	346	33
73	3,735	506	14	325	33
74	4,185	1,678	40	938	74

Table 10 (Cont'd)

Region	Total Arms Imported	U.S. Arms Imported	Percent of Region	U.S. Grants+ Funding	Percent Of Total Grants+ Funding
--------	---------------------------	--------------------------	-------------------------	----------------------------	---

Middle East (Cont'd)

75	3,875	1,702	44	247	28
76	5,695	2,908	51	1,019	14
77	7,690	3,726	48	632	66
78	7,585	3,033	40	659	65

SOUTH ASIA

1972	370	6	2	.1	0
73	450	5	1	0	0
74	400	13	3	.2	0
75	325	14	4	.2	0
76	750	20	3	.4	0
77	1,075	51	5	0	0
78	545	58	11	.2	0

during the period.

Appendix 11 shows U.S. arms imports, market share, military assistance (dollars) and military assistance (as a percent of the regional total) for selected countries of the Third World. There does not appear to be any direct numerical relationship between funding provided and market share; however, those countries which receive a large percentage of U.S. aid again tend to buy a high percentage of their arms from the U.S. Also, FMS funds are not evenly distributed; in fact, Israel and Korea receive the bulk of military assistance credits.

In short, a quick perusal of FMS credits and U.S. market share provides hardly unexpected results: in those regions and countries which receive a large percentage of total U.S. credits, U.S. market share is high. More importantly, there is an extreme concentration of FMS credits in two regions, East Asia and the Middle East, and in two countries, Korea and Israel.

CHAPTER FOUR: CONCLUSIONS

Based upon a partial analysis of the Third World arms market, seven conclusions are asserted:

1. Arms import levels are systematically related to GNP, GNP per capita, total exports, total exports per capita, military expenditures, and military expenditures per member of the armed forces in a number of the Third World nations studied. In thirty of the forty nations analyzed, arms demand is significantly correlated with GNP.
2. Arms demand can be forecast using estimates of future GNP. Regional projections show that Africa and the Middle East will be the largest arms demanders in the next decade, while the portion of the market accounted for by East Asia, Latin America, and South Asia will be small.
3. From 1965 to 1978, U.S. market share in the Third World declined from 53 percent to 36 percent. U.S. share remained about constant

in the Middle East and South Asia, declined significantly in Africa and Latin America, and increased in East Asia.

4. During the same period, the market share of the Soviet Union has increased in three regions (Africa, Latin America, and South Asia) and declined in two (East Asia and the Middle East). Except for the United Kingdom in Africa, the European supplying nations have maintained or increased their market shares in all regions.

5. Present market share trends combined with demand projections show that U.S. arms transfer policy toward Africa and Latin America will be of importance in the future.

6. The current U.S. arms policy as embodied in the Arms Export Control Act and Presidential Directive Thirteen limits the transfer of weapons to the Third World. Provisions of the AECA particularly restrain arms transfers to Latin America.

7. The areas which receive the largest

percentage of U.S. Foreign Military Sales credits have high U.S. market share figures. The bulk of FMS credits go to two regions, East Asia and the Middle East, and to two countries, the Republic of Korea and Israel.

These conclusions have several policy implications. Africa and Latin America are important regions for both economic and political reasons in the next decade. U.S. market share has declined to half of 1965 levels in the two regions. If a policy decision to increase sales in the two regions is made, the following recommendations are provided. First, a more liberal arms policy, especially with respect to Latin America, is recommended. Current restrictions on FMS credits and sales to Argentina, Brazil, Chile, and Guatemala should be repealed. Secondly, a different distribution of FMS credits may allow the countries of Africa and Latin America to purchase more U.S. arms. Currently, less than one percent of total FMS credits go to these regions.

In sum, this paper has reviewed the demand and supply of arms to the Third World. Seven conclusions have been reached. Based upon these conclusions, policy implications and options have been presented.

NOTES

Chapter I

¹U.S., Arms Control and Disarmament Agency. World Military Expenditures and Arms Transfers 1969-1978 (Washington, D.C.: Government Printing Office, 1980). Hereafter referred to as ACDA, WMEAT.

²Ibid.

³Ibid.

⁴U.S., Department of Defense. Annual Report: Fiscal Year 1980 (Washington, D.C.: Government Printing Office, 1979), p. 223.

⁵Geoffrey Kemp and John L. Suttan, Arms to Developing Countries, 1945-1965, Adelphi Paper No. 28 (London: Institute for Strategies Studies, 1966), p. 29.

⁶Ibid., p. 31.

⁷Amelia C. Leiss and Geoffrey Kemp, Arms Transfers to Less Developed Countries (Cambridge, Mass: MIT Press, 1970), p. 22.

⁸Ibid., p. 26.

⁹Ibid., p. 60.

¹⁰Ibid.

¹¹Ibid., p. 32.

¹²Stockholm International Peace Research Institute. The Arms Trade with the Third World (New York: Holmes and Meier Publishers, Inc., 1975), pp. 27-31.

¹³For a critique of the SIPRI model, see Ilan Peleg, "Arms Supply to the Third World--Models and Explanations," The Journal of Modern African Studies, 15 (Winter, 1977).

¹⁴H. Robert Coward, Military Technology in Developing Countries (Cambridge, Mass: MIT Press, 1964).

¹⁵Joergen R. Lotz and Elliot R. Morss, "A Study of Military Expenditures" as quoted in Joergen R. Lotz, "Patterns of Government Spending in Developing Countries," Manchester School, 38, p. 134.

¹⁶Ibid.

¹⁷Joergen R. Lotz, "Patterns of Government Spending in Developing Countries," Manchester School, 38, p. 134.

¹⁸Ibid.

¹⁹Herman Weil, et al. Stochastic Simulations of Long-Range Forecasting Models (Arlington, Va: Defense Advanced Research Projects Agency, 1975), p. 1.

²⁰Ibid., p. 43.

²¹Jan Oberg, "Arms Trade with the Third World as an Aspect of Imperialism," Journal of Peace Research, 12:3 (1975), p. 215.

²²Ilan Peleg, "Arms Supply to the Third World--Models and Explanations," The Journal of Modern African Studies, 15:1 (1977), p. 94.

²³Ibid.

²⁴Robert E. Harkavy and Stephanie G. Neuman, ed., Arms Transfers in the Modern World (New York: Praeger, 1980), p. 317.

²⁵David K. Whynes, The Economics of Third World Military Expenditures (Austin, Texas: University of Texas, 1979).

²⁶U.S., Congress, Senate, Committee on Foreign Relations, The Conventional Arms Transfer Policy of the United States, 96th Congress, 2nd Sess., 1980, p. 4.

²⁷Ibid.

²⁸Dusko Doder, "Soviets and India Set \$1.6 Billion Arms Agreement," Washington Post, May 29, 1980, p. A-1.

²⁹See Michael D. Eiland, "Military Modernization and the PRC Economy," Report to the Office of the Assistant Secretary of Defense, International Economic Affairs Directorate, May 1977 (Washington, D.C.: Government Printing Office).

³⁰Ibid., p. 5.

³¹Ibid., p. 4

³²Ibid., p. 20

³³"World Arms: The Scramble to Cash In on Weapons Exports," Business Week, March 24, 1980, p. 65.

³⁴Ibid.

Chapter II

¹International Institute for Strategies Studies. The Military Balance 19--, (Dovking, England: Adlard and Son).

²Stockholm International Peace Research Institute. SIPRI Yearbook of World Armament and Disarmament, 19-- (New York: Humanities Press).

³Geoffrey Kemp, Robert Pfaltzgraff, Jr., and Ra'anon Uri, ed., Arms Transfers to the Third World: The Military Buildup in Less Industrial Countries (Boulder Colorado: Westview Press, 1978), pp. 87-106.

⁴Harkavy and Neuman, Arms Transfers in the Modern World, p. 38.

⁵Ibid., p. 39.

⁶Ibid., p. 79.

⁷Ibid.

⁸Ibid., p. 45.

⁹Ibid., p. 39. This problem was minimized in the study since the computer tape provided by ACDA contained twelve years of data (1967-1978) with the same base year and current revisions.

¹⁰Ibid.

¹¹The country rankings are provided in the Appendices.

¹²The projection of Iran's arms demand is based upon the country's arms demand pattern under the Shah and pre-war GNP growth estimates. Given the present regime and Iran's economic problems, it is unlikely that Iran will be a major arms demander in the near future.

Chapter III

¹Laurel A. Mayer, "Third World Arms Transfers and U.S. Foreign Policy" (Ph.D. dissertation, Miami University, 1977), p. 111.

²Ibid., p. 112.

³Kemp, et al., Arms Transfer to the Third World: The Military Buildup in Less Industrial Countries, p. 129.

⁴Mayer, "Third World Arms Transfer and U.S. Foreign Policy," p. 110.

⁵Ibid.

⁶Ibid. p. 114.

⁷Harkavy and Neuman, Arms Transfers in the Modern World, p. 190.

⁸See U.S. Congress, Congressional Budget Office, "Budgetary Cost Savings to the Department of Defense Resulting from Foreign Military Sales," May 24, 1976.

⁹Mayer, "Third World Arms Transfers and U.S. Foreign Policy," p. 94. See also U.S. Congress, Congressional Budget Office, "The Effect of Foreign Military Sales on the U.S. Economy," July 23, 1976.

¹⁰International Institute for Strategies Studies. Strategies Survey, p. 21, as quoted in Harkavy and Neuman, Arms Transfers in the Modern World, p. 300.

¹¹Market share figures are provided in the Appendices.

¹²Kemp, et al., Arms Transfers to the Third World: The Military Buildup in Less Industrial Countries, p. 346.

¹³Ibid.

¹⁴Ibid.

¹⁵U.S. Congress, House. Committee on International Relations, United States Arms Transfer and Security Assistance Program, 95th Cong., 2nd Sess., 1978, p. 9.

¹⁶Ibid.

¹⁷Ibid., p. 14.

¹⁸Ibid., p. 4.

¹⁹Ibid., p. 46.

²⁰A notable exception is the provision that "the President, however, may reduce or waive the charge or charges concerning the use of plant and equipment and/or new recurring costs for particular sales that would significantly advance NATO standardization efforts or foreign procurement in the U.S. under coproduction agreements," Ibid., p. 53.

²¹Ibid., p. 83.

²²Ibid.

²³Ibid.

²⁴Ibid., p. 85.

²⁵Ibid., p. 48.

²⁶Ibid., p. 49.

²⁷Ibid., p. 51.

²⁸Ibid., p. 50.

²⁹Ibid., p. 57. The major legislative restrictions included in the AECA are given in the Appendices.

³⁰Ibid., p. 125. The complete text is provided in the Appendices.

³¹U.S. Senate. Committee on Foreign Relations. The Conventional Arms Transfer Policy of the United States, p. 2.

³²See Appendix for full text of the February 1, 1978 statement.

³³U.S. Senate. Committee on Foreign Relations, The Conventional Arms Transfer Policy of the United States, p. 1.

³⁴Ibid., p. 2.

³⁵Ibid.

³⁶Ibid., p. 3.

³⁷Ibid.

³⁸Ibid., p. 4.

³⁹Ibid., p. 17.

⁴⁰Katherine Johnsen, "Guides to Clear Way for Export Fighter," Aviation Week, January 14, 1980, p. 18.

⁴¹U.S. Department of Defense. Annual Report: Fiscal Year 1980., p. 223.

⁴²Ibid., p. 226.

SELECTED BIBLIOGRAPHY

- Coward, H. Robert. Military Technology in Developing Countries. Cambridge, Mass: MIT press, 1964.
- Doder, Dusko. "Soviets and India Set \$1.6 Billion Arms Agreement." Washington Post. May 29, 1980.
- Eiland, LTC Michael D. Military Modernization and the PRC Economy. Report to the Office of the Assistant Secretary of Defense, International Economic Affairs Directorate, May 1977. Washington, D.C.: Government Printing Office, 1977.
- Harkavy, Robert E., and Neuman, Stephanie G., ed. Arms Transfers in the Modern World. New York: Praeger, 1980.
- International Institute for Strategic Studies. The Military Balance 19--. Dovking, England: Adlard and Son.
- Johnsen, Katherine. "Guides to Clear Way for Export Fighter." Aviation Week and Space Technology, January 14, 1980, pp. 17-19.
- Kemp, Geoffrey; Pfaltzgraff, Robert Jr.; and Ra'anon Uri, ed. Arms Transfers to the Third World: The Military Buildup in Less Industrial Countries. Boulder, Colorado: Westview Press, 1978.
- Kemp, Geoffrey and Suttan, John L. Arms to Developing Countries, 1945-1965. Adelphi Paper No. 28. London: Institute for Strategic Studies, 1966.
- Leiss, Amelia C. Changing Patterns of Arms Transfers, Implications for Arms Transfer Policies. Arms Control Project, Pub. No. C170-2, February 1970. Cambridge Mass: Center for International Studies MIT, 1970.
- Leiss, Amelia C. with Kemp, Geoffrey; and Hoagland, John H.; Refson, Jacob S.; and Fischer, Harold E. Arms Transfers to Less Developed Countries. Vol. III of Arms Control and Local Conflict. Arms Control Project, Pub. No. C170-1, February 1970. Cambridge, Mass: Center for International Studies MIT, 1970.
- Lotz, Joergen R. "Patterns of Government Spending in Developing Countries." Manchester School, 38.
- Mayer, Laurel Anthony. "Third World Arms Transfers and U.S. Foreign Policy." Ph.D. dissertation, Miami University, 1977.

Oberg, Jan. "Arms Trade with the Third World as an Aspect of Imperialism," Journal of Peace Research, No. 3, Vol. XII (1975), 213-234.

Pascal, Anthony; Kennedy, Michael; and Steven Rosen, Men and Arms in the Middle East: The Human Factor in Military Modernization. A report prepared for Director of Net Assessment, Office of the Secretary of Defense, June 1979. Santa Monica, Ca: Rand, 1979.

Peleg, Ilan. "Arms Supply to the Third World--Models and Explanations," The Journal of Modern African Studies, 15. (Winter, 1977), 91-103.

Stockholm International Peace Research Institute. The Arms Trade with the Third World. Revised and abridged ed. New York: Holmes and Meier Publishers, Inc., 1975.

Stockholm International Peace Research Institute. SIPRI Yearbook of World Armament and Disarmament, 19--. New York: Humanities Press.

U.S. Arms Control and Disarmament Agency, World Military Expenditures and Arms Transfers 1969-1978. Pub. No. 108 (Washington, D.C.: U.S. Government Printing Office, 1980).

U.S. Congress, Congressional Budget Office, "Budgetary Cost Savings to the Department of Defense Resulting from Foreign Military Sales," Staff Working Paper, May 24, 1976.

U.S. Congress, Congressional Budget Office, "The Effect of Foreign Military Sales on the U.S. Economy," Staff Working Paper, July 23, 1976.

U.S. Congress, House, Committee on International Relations, United States Arms Transfer and Security Assistance Programs, 95th Cong. 2nd Sess., March 21, 1978.

U.S. Congress, Senate, Committee on Foreign Relations, The Conventional Arms Transfer Policy of the United States, 96th Cong., 2nd Sess., March 4 and 6, 1980.

U.S. Department of Defense. Annual Report Fiscal Year 1980. Harold Brown, Secretary of Defense. Washington, D.C.: U.S. Government Printing Office, 1979.

U.S. General Accounting Office, "Military Sales--An Increasing U.S. Role in Africa," PB-279 481, April 4, 1978.

Weil, Dr. Herman M., and McIlroy, Dr. John J. Stochastic Simulations of Long-Range Forecasting Models. Final Technical Report, October 31, 1975. Arlington, Va: Defense Advanced Research Projects Agency, 1975.

Whynes, David K. The Economics of Third World Military Expenditure. Austin: University of Texas Press, 1979.

"World Arms: The Scramble to Cash In on Weapons Exports." Business Week, March 24, 1980, pp. 62-67.

World Bank. World Development Report, 1980. New York: Oxford University Press, 1980.

APPENDIX 1

COUNTRY RANKINGS

Population* (Millions)		GNP* (Billions \$)		Arms Imports** (Millions \$)	
1. India	(643)	1. Brazil	(163.5)	1. Iran	(8,300)
2. Indonesia	(142)	2. India	(101.5)	2. Iraq	(5,300)
3. Brazil	(113.7)	3. Iran	(75.3)	3. Libya	(5,000)
4. Bangladesh	(83.5)	4. Mexico	(72.2)	4. Israel	(4,800)
5. Pakistan	(79.5)	5. Saudi Arabia	(55.8)	5. Syria	(3,300)
6. Nigeria	(69.9)	6. Argentina	(50.3)	6. Saudi Arabia	(3,000)
7. Mexico	(62.3)	7. Indonesia	(44.4)	7. India	(1,900)
8. N. Vietnam	(49.9)	8. Nigeria	(39.5)	8. Ethiopia	(1,600)
9. Philippines	(45.4)	9. S. Africa	(37.9)	9. S. Vietnam	(1,600)
10. Thailand	(44.3)	10. Venezuela	(35.8)	10. Algeria	(1,500)
% of Total 63.5 (Developing)		% of Total 59.3 (Developing)		% of Total 64.4 (Developing)	
11. Egypt	(38.8)	11. S. Korea	(34.4)	11. S. Korea	(1,400)
12. S. Korea	(37.9)	12. Philippines	(20.6)	12. Egypt	(1,200)
13. Iran	(35.4)	13. Taiwan	(19.7)	13. Peru	(1,000)
14. Burma	(32.0)	14. Algeria	(19.2)	14. Taiwan	(850)
15. Ethiopia	(30.2)	15. Iraq	(19.1)	15. Pakistan	(775)
16. S. Africa	(26.7)	16. Columbia	(18.7)	16. Angola	(725)
17. Argentina	(26.4)	17. Thailand	(18.7)	17. Brazil	(650)
18. Zaire	(26.3)	18. Libya	(17.7)	18. Cambodia	(625)
19. Columbia	(25.1)	19. Pakistan	(15.2)	19. S. Africa	(600)
20. Morocco	(19.2)	20. Chile	(14.6)	20. N. Korea	(490)
% of Total 77.7 (Developing)		% of Total 76.7 (Developing)		% of Total 79.2 (Developing)	

Source: ACDA World Military Expenditures and Arms Transfers

* 1978 Data

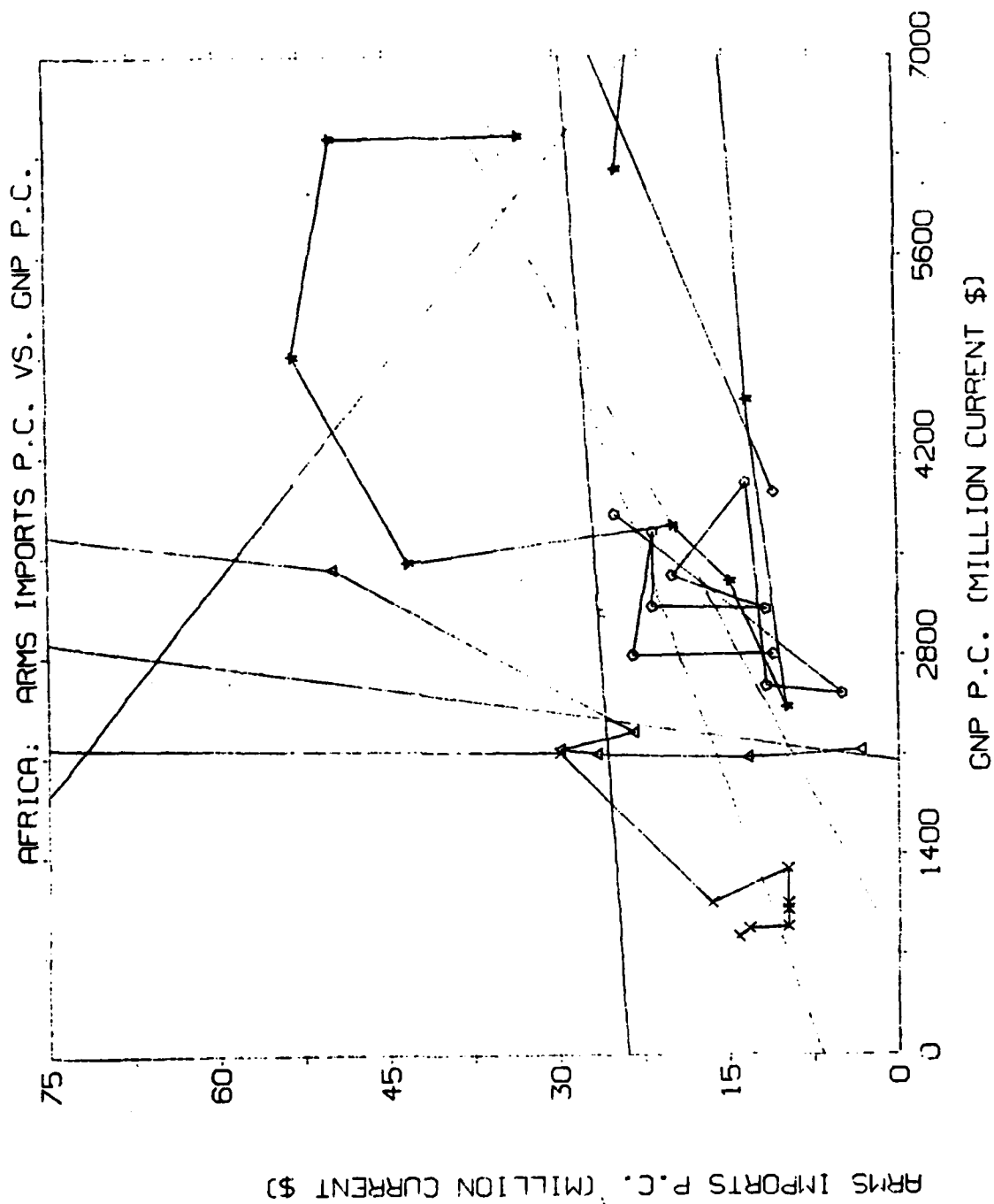
** Cumulative (1974-1978)

Appendix 1 (Cont'd)

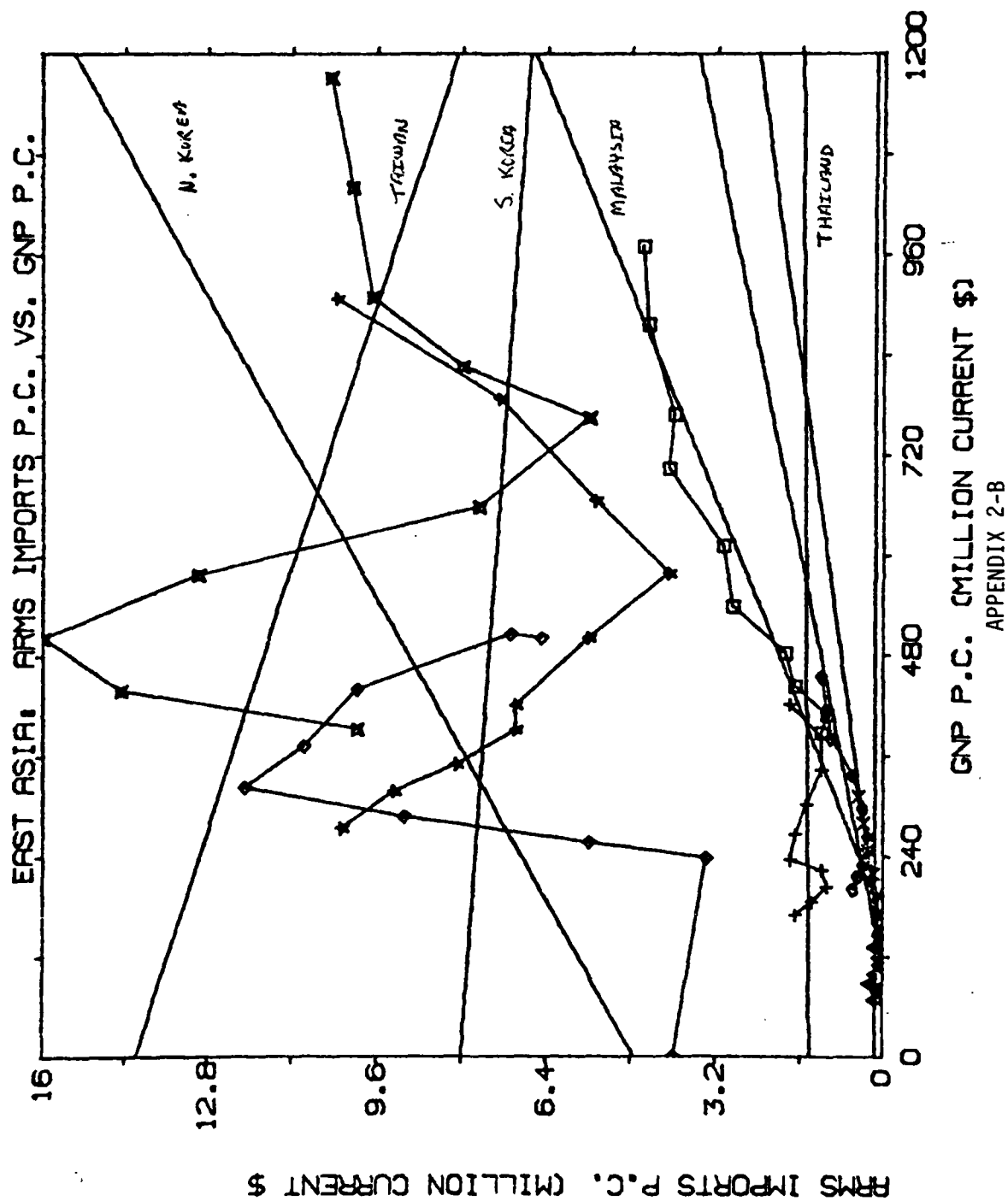
Armed Forces (Thousands)		Defense Expenditures (Million \$)		Defense Exp/Man*** (\$/Man)	
1. India	(1,270)	1. Saudi Arabia	(8,952)	1. Saudi Arabia	(149,200)
2. N. Vietnam	(615)	2. Iran	(8,747)	2. Kuwait	(111,500)
3. S. Korea	(600)	3. Israel	(4,312)	3. S. Africa	(29,209)
4. Pakistan	(588)	4. India	(3,076)	4. Israel	(26,133)
5. N. Korea	(520)	5. N. Korea	(2,112)	5. Iran	(24,991)
6. Taiwan	(460)	6. Iraq	(2,007)	6. Iraq	(14,336)
7. Brazil	(450)	7. S. Africa	(1,957)	7. Venezuela	(11,564)
8. Iran	(350)	8. Nigeria	(1,932)	8. Libya	(9,000)
9. Egypt	(350)	9. S. Korea	(1,906)	9. Kenya	(7,846)
10. Nigeria	(300)	10. Brazil	(1,668)	10. Peru	(7,386)
% of Total (Developing)		% of Total (Developing)			
		57.1		65.1	
11. Indonesia	(260)	11. Taiwan	(1,597)	11. Argentina	(6,619)
12. Thailand	(230)	12. Indonesia	(1,465)	12. Malaysia	(6,468)
13. Syria	(225)	13. Egypt	(1,359)	13. Nigeria	(6,440)
14. Ethiopia	(225)	14. Kuwait	(1,115)	14. Algeria	(6,289)
15. Burma	(208)	15. Syria	(1,047)	15. Indonesia	(5,635)
16. Cuba	(200)	16. Argentina	(1,026)	16. Ecuador	(5,167)
17. Israel	(165)	17. Peru	(921)	17. Mexico	(5,160)
18. Argentina	(155)	18. Pakistan	(817)	18. Morocco	(5,094)
19. Philippines	(155)	19. Cuba	(784)	19. Syria	(4,653)
20. Afghanistan	(143)	20. Oman	(686)	20. N. Korea	(4,062)
% of Total (Developing)		% of Total (Developing)			
		77.1		84.3	

Source: ACDA World Military Expenditures and Arms Transfers

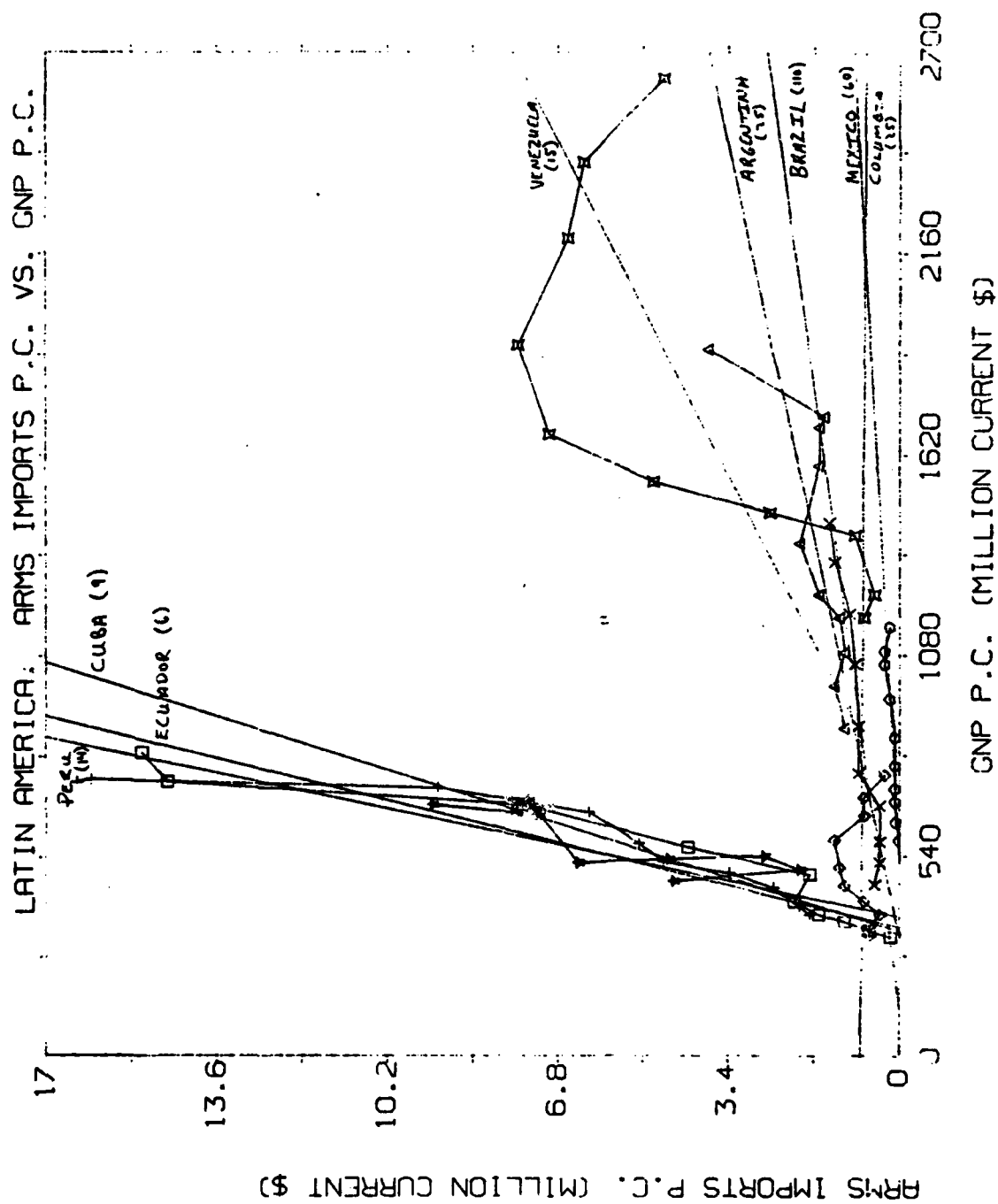
*** Average (1969-1978)

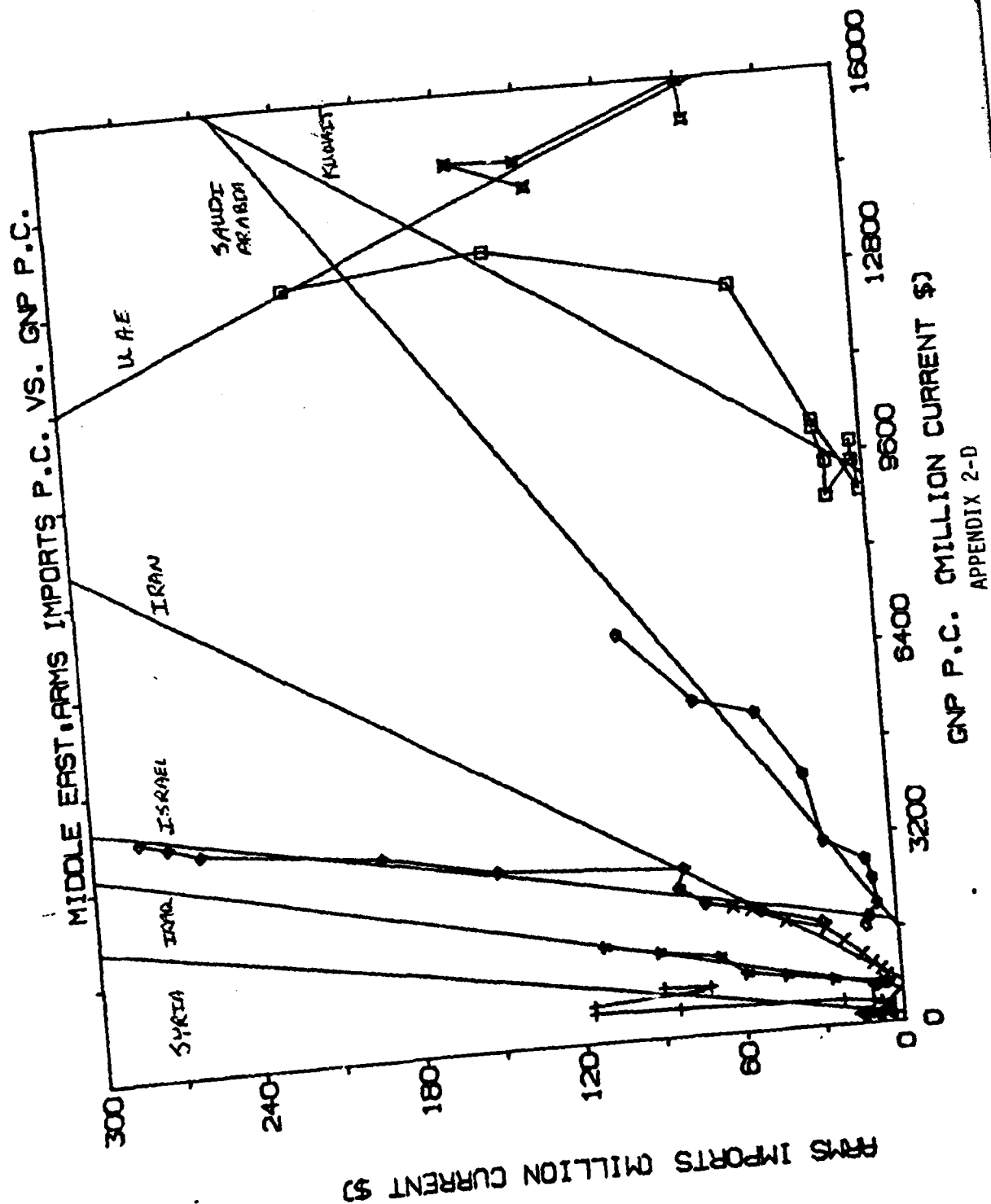


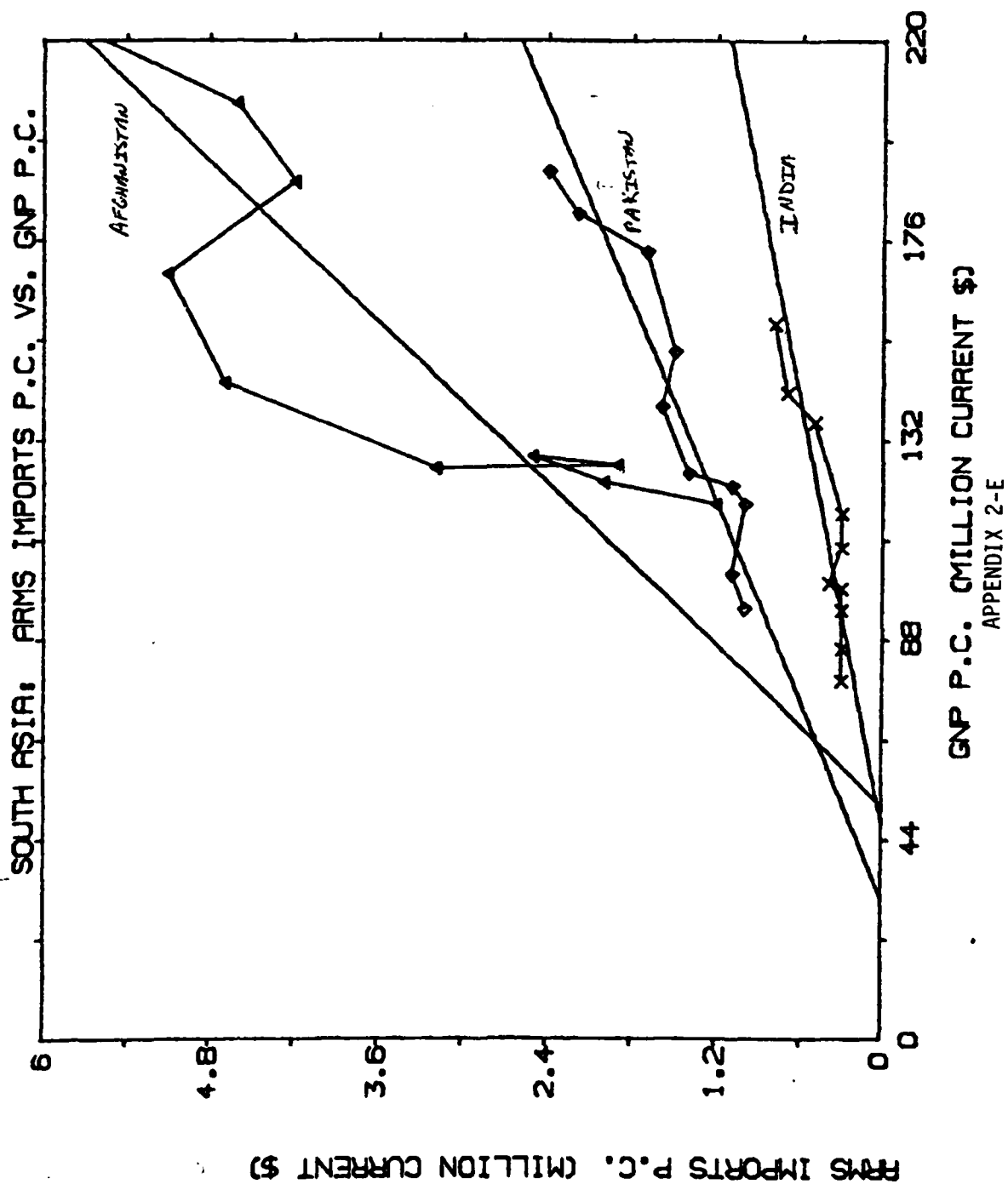
APPENDIX 2-A

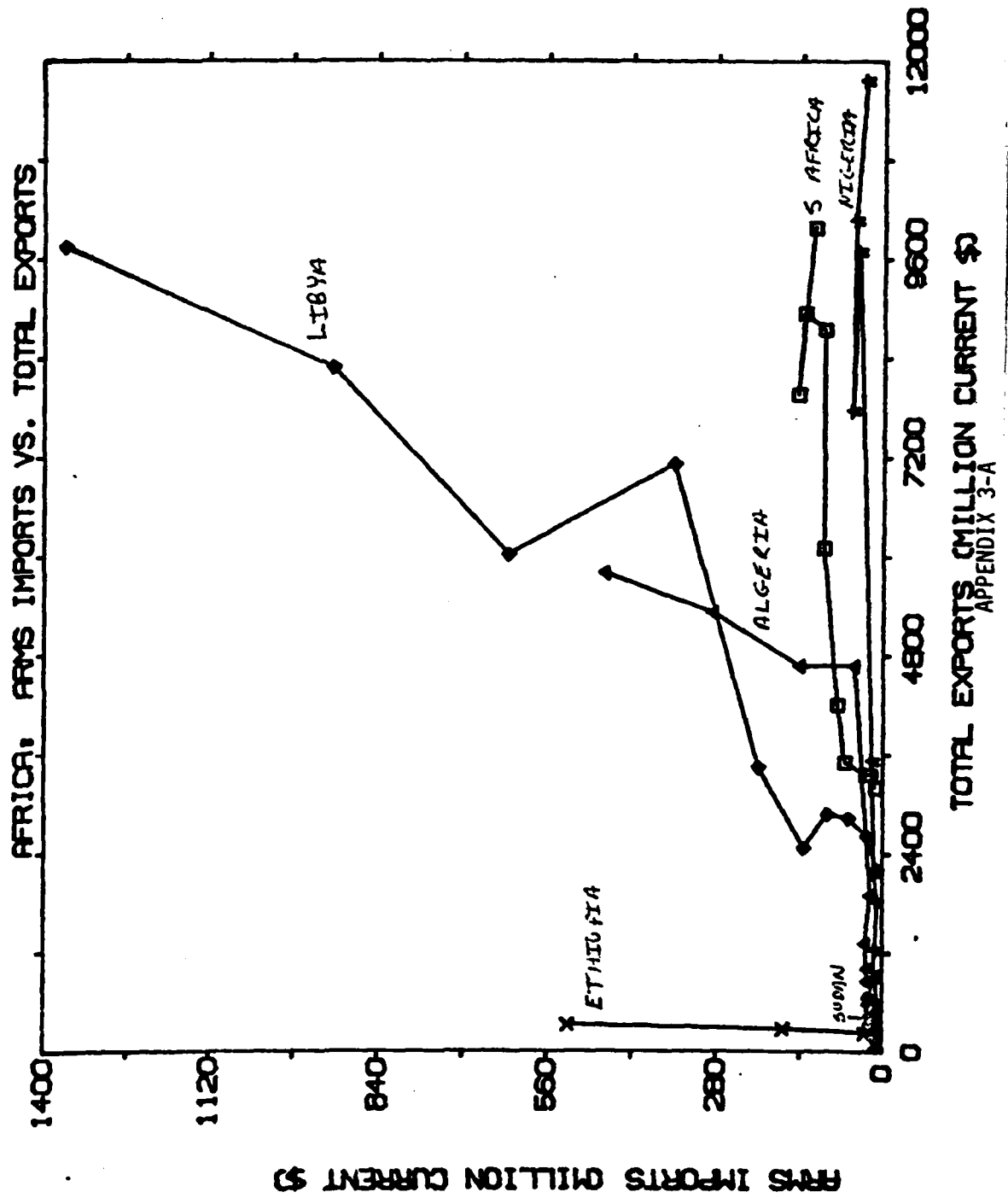


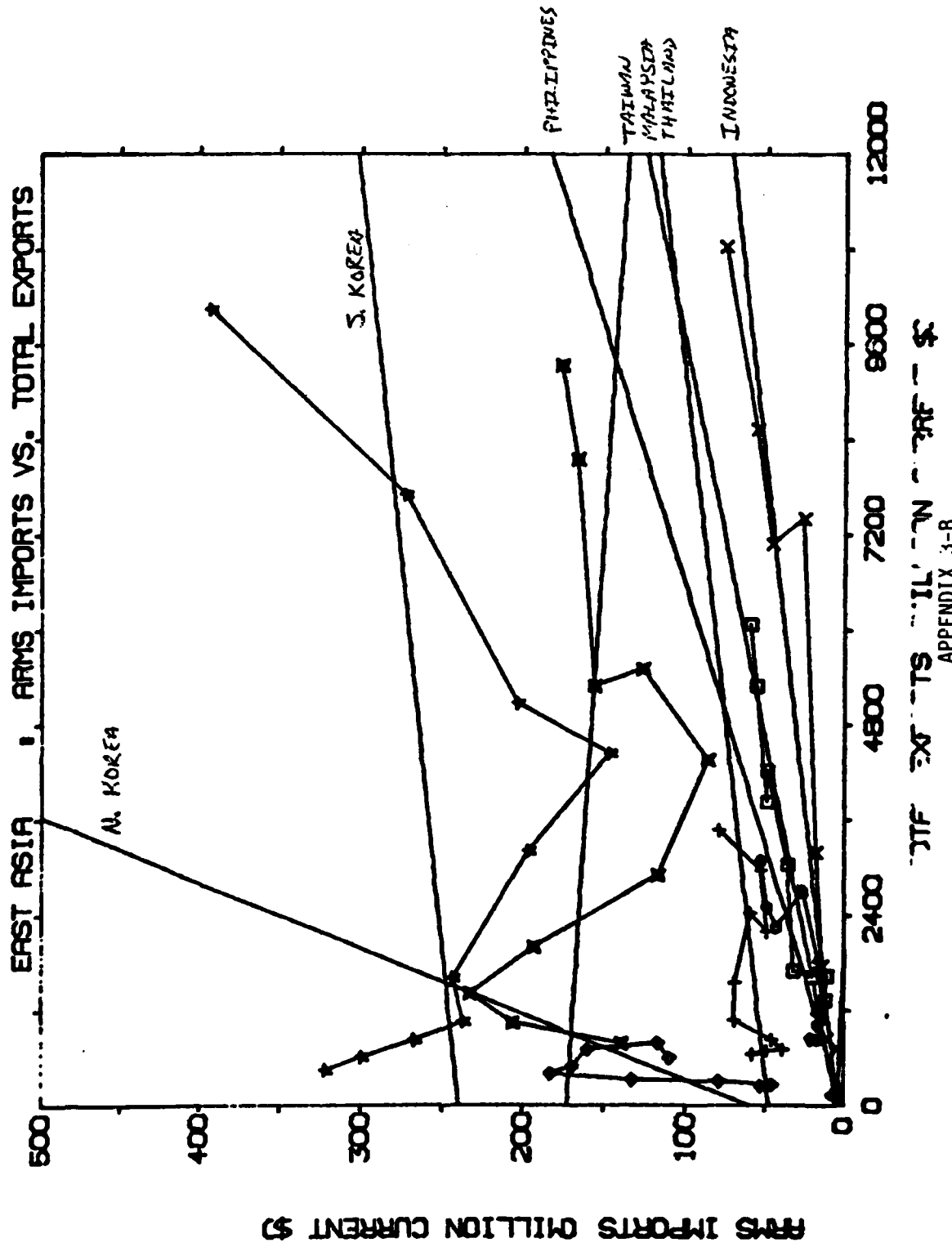
APPENDIX 2-B

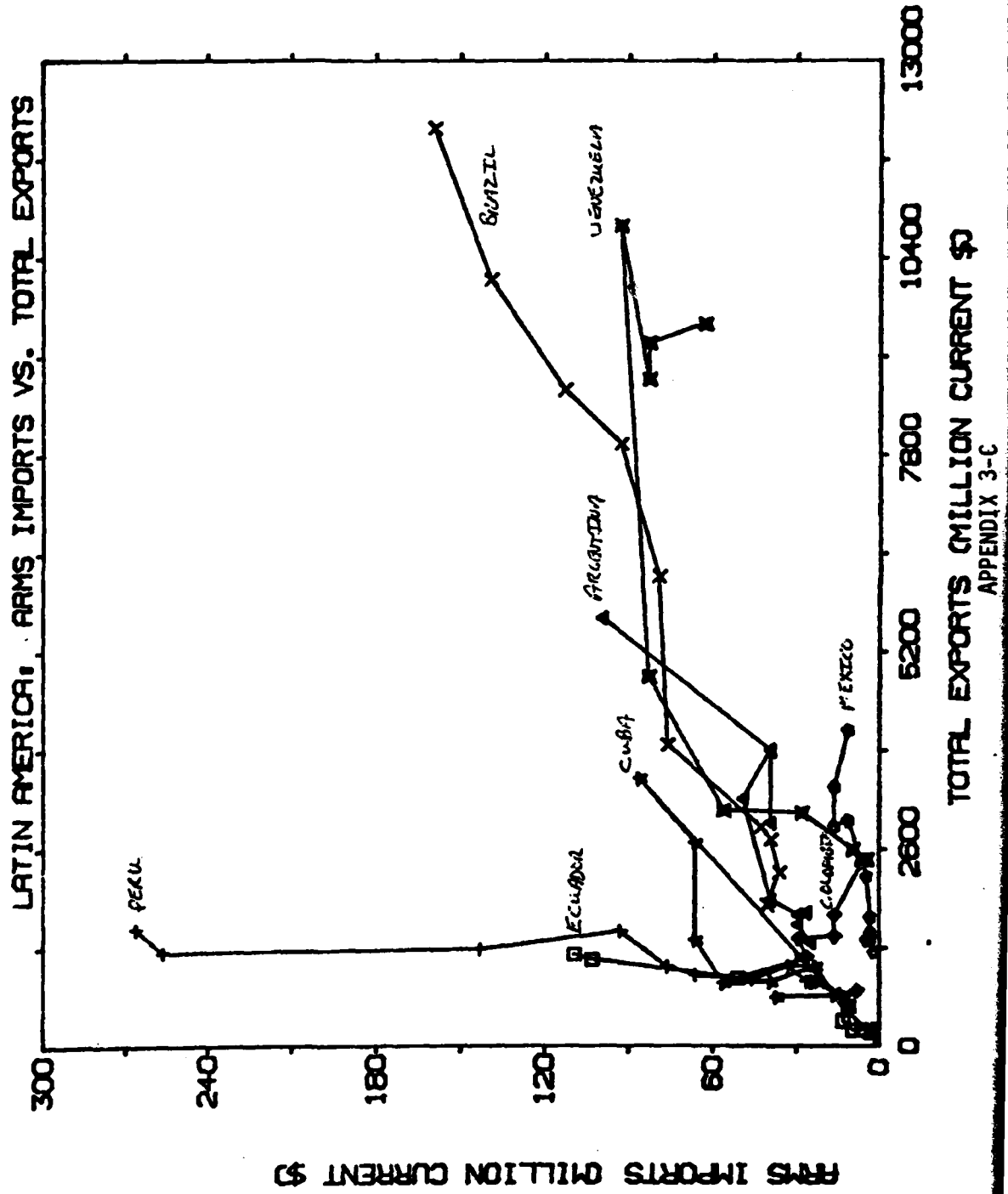


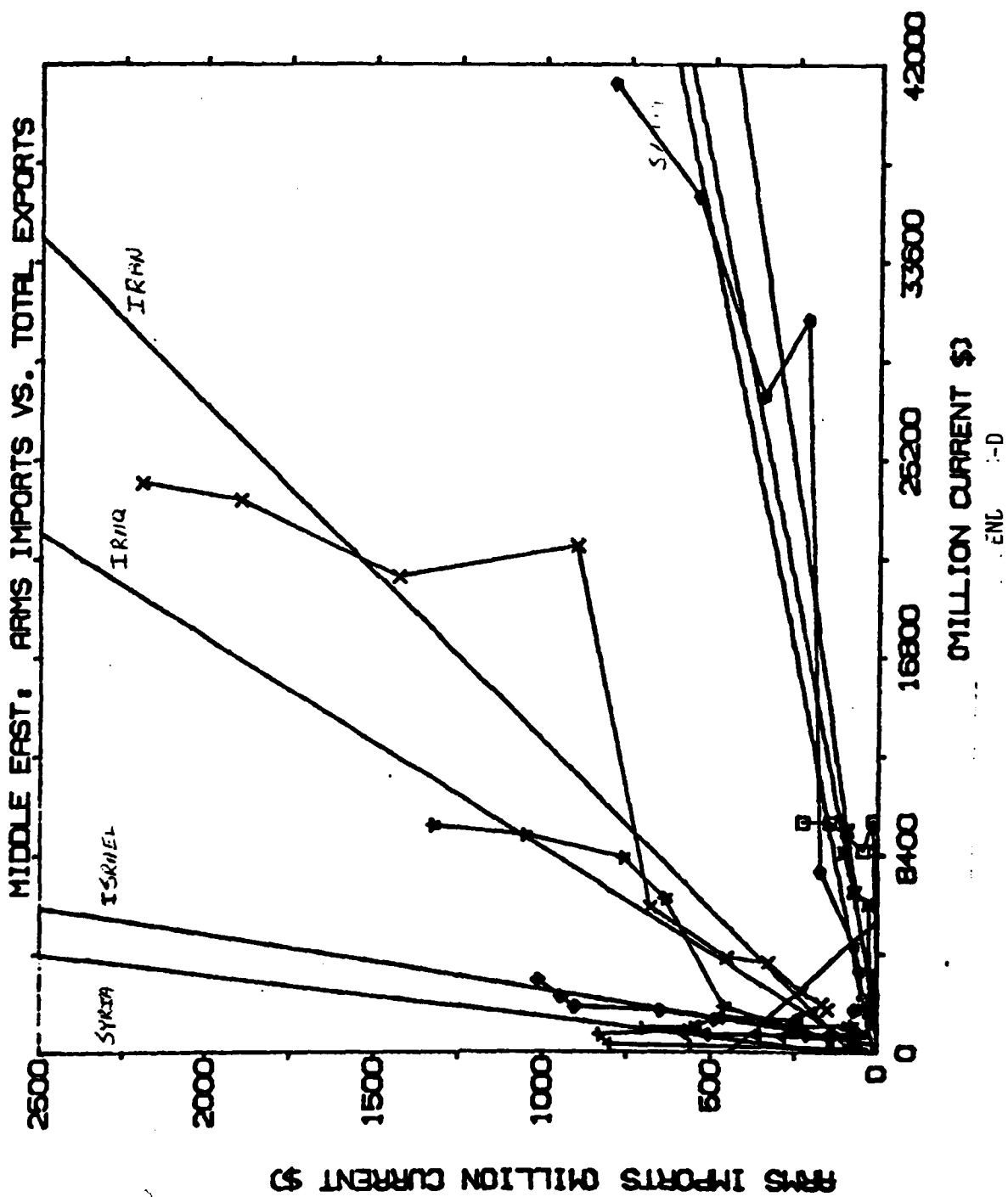


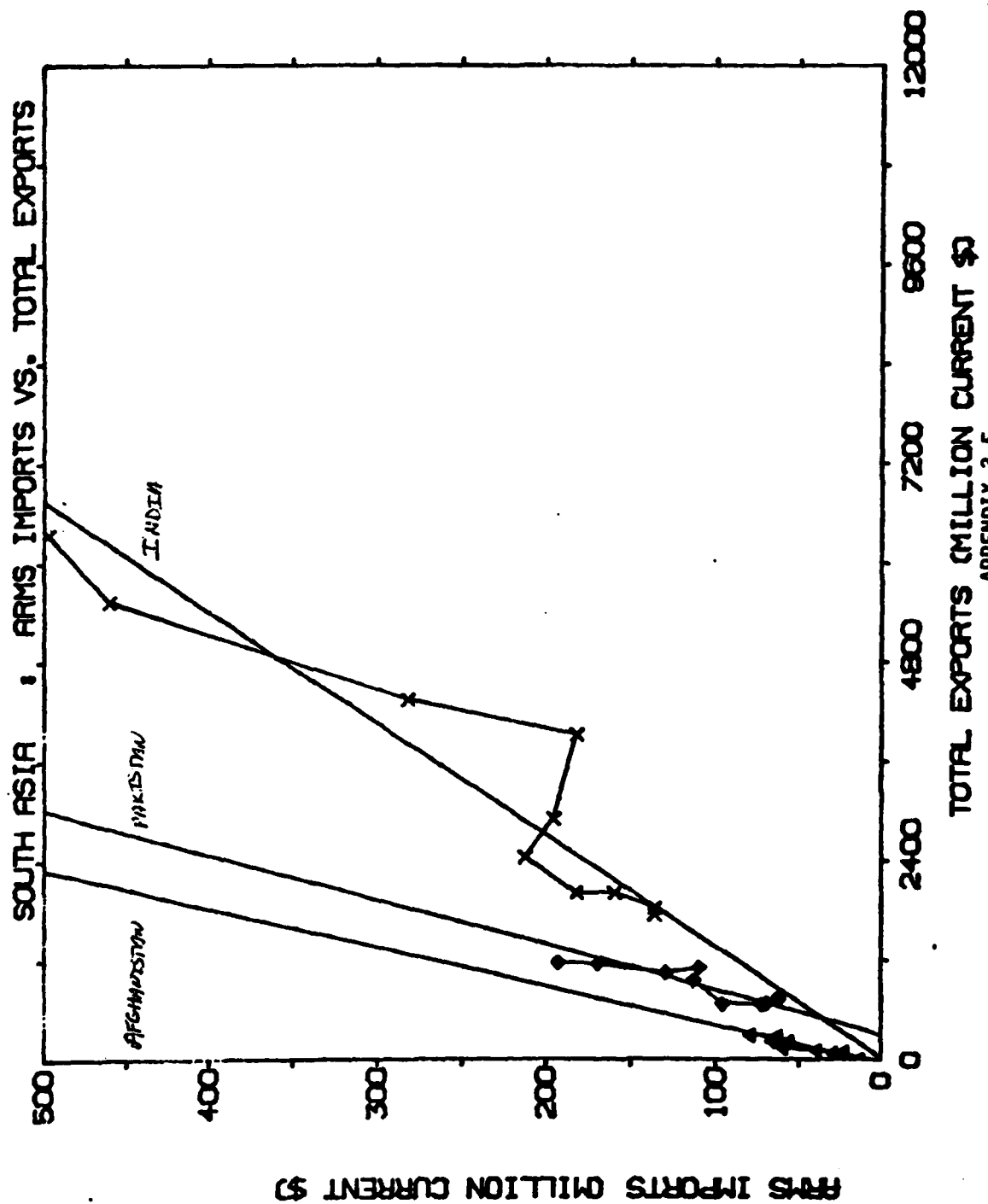












APPENDIX 4-A
REGRESSION RESULTS: ARMS IMPORTS
VERSUS GNP PER CAPITA

<u>Region/ Country</u>	<u>GNP p.c. Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
<u>AFRICA</u>				
Algeria	.04	4.00	.76	-22.89
Ethiopia	.21	2.63	.46	-14.74
Kenya	.01	5.00	.64	-.93
Libya	.14	2.33	.38	-550.94
Morocco	.04	4.00	.79	-11.07
Nigeria	.001	1.00	.35	.07
Somalia	.63	7.00	.87	-52.85
South Africa	.01	10.00	.84	-3.74
Sudan	-.003	-1.00	.17	2.00
Zaire	.03	3.0	.78	-3.64
<u>EAST ASIA</u>				
Burma	-.001	-1.0	.07	.25
Cambodia	-1.16	-7.73	.91	117.31
China, Taiwan	-.01	-2.50	.17	14.15
Indonesia	.002	10.0	.91	-.23
Korea, North	-.001	-.10	.002	8.13
Korea, Rep. of	-.001	-.33	.01	8.00
Malaysia	.01	10.00	.92	-1.06
Philippines	.003	3.00	.76	-.33
Thailand	.0002	.20	.005	1.40
<u>LATIN AMERICA</u>				
Argentina	.002	2.00	.48	-.49
Brazil	.001	10.0	.96	-.14
Chile	.01	5.00	.80	-8.96
Columbia	-.0001	-.10	.003	.81
Cuba	.02	2.00	.64	-8.15
Ecuador	.03	10.0	.90	-10.46
Mexico	.0004	4.00	.76	-.20
Peru	.04	4.00	.81	-13.55
Venezuela	.004	4.00	.46	-2.51
<u>MIDDLE EAST</u>				
Egypt	-.03	-1.50	.18	16.10
Iran	.04	13.33	.94	-26.70
Iraq	.10	10.00	.96	-57.65
Israel	.12	12.00	.95	-202.18

Appendix 4-A (Cont'd)

<u>Region/ Country</u>	<u>GNP p.c. Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
<u>Middle East (Cont'd)</u>				
Kuwait	.03	3.00	.72	-318.40
Oman	.06	6.00	.70	-74.10
Saudi Arabia	.02	10.00	.91	-25.91
Syria	.14	2.33	.42	-18.88
UAE	-.05	-2.50	.61	881.16
<u>SOUTH ASIA</u>				
Afghanistan	.03	3.00	.71	-1.78
India	.01	10.00	.83	-.35
Pakistan	.01	5.00	.88	-.47

APPENDIX 4-B
REGRESSION RESULTS: ARMS IMPORTS
VERSUS TOTAL EXPORTS

<u>Region/ Country</u>	<u>TEXP Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
<u>AFRICA</u>				
Algeria	.060	3.56	.64	-58.41
Ethiopia	1.36	2.61	.46	-191.46
Kenya	.017	3.78	.64	-.366
Libya	.153	7.76	.88	-349.3
Morocco	.105	1.75	.28	-33.25
Nigeria	.003	3.90	.65	13.58
Somalia	1.48	14.35	.97	-38.28
South Africa	.015	5.07	.76	-7.98
Sudan	-.002	-.09	.001	17.08
Zaire	.020	.54	.05	21.27
<u>EAST ASIA</u>				
Burma	-.002	-.11	.0015	4.81
Cambodia	-1.54	-2.81	.66	127.22
China, Taiwan	-.0031	-.60	.04	172.87
Indonesia	.006	7.48	.87	4.36
Korea, North	.121	1.45	.23	61.00
Korea, Rep. of	.005	.72	.06	239.87
Malaysia	.010	7.80	.88	4.44
Philippines	.015	4.18	.69	.71
Thailand	.006	1.57	.24	48.30
<u>LATIN AMERICA</u>				
Argentina	.013	4.75	.74	4.30
Brazil	.012	14.26	.96	12.66
Chile	.035	3.42	.59	-8.45
Columbia	-.0008	-.17	.004	17.94
Cuba	.018	3.35	.65	22.81
Ecuador	.080	4.67	.73	-15.34
Mexico	.005	4.39	.71	-3.10
Peru	.257	3.17	.56	-187.38
Venezuela	.008	4.16	.68	2.85
<u>MIDDLE EAST</u>				
Egypt	-.079	-.58	.04	448.47
Iran	.070	6.91	.86	77.72
Iraq	.112	8.73	.91	27.63
Israel	.424	9.78	.92	-138.27

Appendix 4-B (Cont'd)

<u>Region/ Country</u>	<u>TEXP Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
Middle East (Cont'd)				
Kuwait	.014	2.75	.49	-23.11
Oman	.036	2.82	.50	- 3.42
Saudi Arabia	.014	6.15	.83	13.12
Syria	.565	2.58	.45	138.24
UAE	.011	2.79	.722	-4.71
 <u>SOUTH ASIA</u>				
Afghanistan	.214	5.71	.82	11.77
India	.074	7.52	.88	-1.30
Pakistan	.184	5.17	.77	-56.65

APPENDIX 4-C
REGRESSION RESULTS: ARMS IMPORTS
VERSUS TOTAL EXPORTS PER CAPITA

<u>Region/ Country</u>	<u>TEXP p.c. Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
<u>AFRICA</u>				
Algeria	.054	3.52	.61	-2.46
Ethiopia	1.384	2.33	.41	-7.24
Kenya	.018	3.12	.55	-2.60
Libya	.451	6.31	.84	-188.89
Morocco	.093	1.46	.21	-1.47
Nigeria	.003	3.19	.56	.245
Somalia	1.61	12.83	.96	-15.29
South Africa	.016	4.31	.70	-.433
Sudan	-.015	-.60	.04	1.519
Zaire	-.004	-.11	.002	1.76
<u>EAST ASIA</u>				
Burma	-.012	-.41	.02	.216
Cambodia	-1.39	-2.81	.66	17.11
China, Tawain	-.008	-1.31	.18	12.45
Indonesia	.803	6.91	.86	3.50
Korea, North	.108	1.08	.14	4.38
Korea, Rep. of	-.001	-.09	.001	7.53
Malaysia	.001	6.56	.84	.391
Philippines	.014	3.33	.58	.062
Thailand	.002	.41	.02	1.39
<u>LATIN AMERICA</u>				
Argentina	.013	4.29	.70	.23
Brazil	.011	12.02	.95	.146
Chile	.033	2.89	.51	-.677
Columbia	-.002	-.44	.02	.862
Cuba	.017	3.01	.60	2.70
Ecuador	.078	4.22	.69	-2.30
Mexico	.005	3.96	.66	.076
Peru	.247	2.01	.33	-12.29
Venezuela	.009	3.59	.62	.080
<u>MIDDLE EAST</u>				
Egypt	-.136	-.81	.07	14.62
Iran	.067	6.39	.84	3.20
Iraq	.110	7.91	.89	3.20

Appendix 4-C (Cont'd)

<u>Region/ Country</u>	<u>TEXP p.c. Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
Middle East (Cont'd)				
Israel	.444	8.77	.91	-52.34
Kuwait	.012	2.07	.35	-16.36
Oman	.035	2.70	.48	-4.39
Saudi Arabia	.013	5.44	.79	3.97
Syria	.566	2.19	.37	19.40
UAE	.006	1.06	.27	36.77
SOUTH ASIA				
Afghanistan	.203	6.37	.84	1.06
India	.073	6.52	.84	.004
Pakistan	.178	3.31	.58	-.740

APPENDIX 4-D
REGRESSION RESULTS: ARMS IMPORTS
VERSUS MILITARY EXPENDITURES

<u>Region/ Country</u>	<u>MILEX Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
<u>AFRICA</u>				
Algeria	1.07	6.69	.85	-171.61
Ethiopia	2.76	5.28	.78	-131.38
Kenya	.21	4.60	.72	-.23
Libya	2.27	1.12	.13	-228.52
Morocco	.86	9.24	.91	-104.06
Nigeria	.02	1.80	.31	3.75
Somalia	5.44	9.45	.92	-66.54
South Africa	.07	4.43	.71	8.74
Sudan	.02	.32	.01	14.12
Zaire	-.10	-.49	.04	53.87
<u>EAST ASIA</u>				
Burma	.03	.896	.11	.33
Cambodia	.43	.40	.03	61.29
China, Taiwan	.01	-.19	.01	73.60
Indonesia	.06	10.53	.93	-21.50
Korea, North	.01	.35	.02	98.90
Korea, Rep. of	.04	.89	.10	223.00
Malaysia	.12	.15	.97	-1.50
Philippines	.07	9.72	.93	7.85
Thailand	.05	1.80	.25	43.01
<u>LATIN AMERICA</u>				
Argentina	.04	1.80	.32	14.17
Brazil	.05	2.07	.37	-1.28
Chile	.09	1.76	.30	13.75
Columbia	.01	.15	.001	16.15
Cuba	.32	6.06	.86	-36.15
Ecuador	.95	8.65	.90	-38.46
Mexico	.04	6.90	.86	-6.19
Peru	.36	9.25	.92	-33.11
Venezuela	.18	2.79	.51	-23.37
<u>MIDDLE EAST</u>				
Egypt	.40	.22	.01	325.87
Iran	.22	9.65	.92	-227.61
Iraq	.85	9.51	.92	-585.39

Appendix 4-D (Cont'd)

<u>Region/ Country</u>	<u>MILEX Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
<u>Middle East (Cont'd)</u>				
Israel	. 5	9.65	.92	-169.06
Kuwait	.20	6.13	.83	-50.76
Oman	.08	1.86	.37	-7.40
Saudi Arabia	.07	7.69	.89	-44.45
Syria	.61	2.36	.41	117.13
UAE	.10	2.82	.73	34.79
<u>SOUTH ASIA</u>				
Afghanistan	1.47	4.38	.71	-9.96
India	.19	6.15	.82	-147.86
Pakistan	.23	6.89	.85	-29.18

APPENDIX 4-E
REGRESSION RESULTS: ARMS IMPORTS
VERSUS MILITARY EXPENDITURES

<u>Region/ Country</u>	<u>MILEX/AF Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
<u>AFRICA</u>				
Algeria	88.59	8.63	.90	-1.83
Ethiopia	-9.95	-.09	.001	93,335.93
Kenya	3.05	4.85	.75	-5,684.57
Libya	-5.18	-.14	.002	442,646.06
Morocco	7.54	5.51	.79	-136.15
Nigeria	.78	.33	.01	24,070.16
Somalia	37.40	.26	.01	16,082.56
South Africa	4.45	5.35	.78	6,815.10
Sudan	6.58	1.65	.25	-4,493.05
Zaire	-1.18	-1.25	.21	7,194.88
<u>EAST ASIA</u>				
Burma	12.77	1.64	.25	-4,157.45
Cambodia	-136.98	-1.17	.21	-173.112.93
China, Taiwan	-5.04	-.23	.01	169,993.23
Indonesia	13.05	10.54	.93	-9,523.629
Korea, North	17.62	1.03	.13	75,522.33
Korea, Rep. of	26.83	1.01	.11	221,464.93
Malaysia	11.87	10.22	.93	-16,165.44
Philippines	11.71	3.87	.65	-4,944.88
Thailand	10.54	1.36	.19	41,369.41
<u>LATIN AMERICA</u>				
Argentina	7.02	1.96	.33	12,519.82
Brazil	21.67	1.48	.21	-1,226.26
Chile	4.38	.76	.07	26,882.40
Columbia	.75	.22	.01	14,942.30
Cuba	35.38	4.76	.79	-22,230.04
Ecuador	26.76	4.65	.73	-61,292.88
Mexico	4.73	5.73	.80	-10,981.52
Peru	5.12	10.77	.94	10,680.48
Venezuela	12.57	2.45	.43	-52,451.58
<u>MIDDLE EAST</u>				
Egypt	-46.74	-.49	.03	477,137.27
Iran	101.43	8.76	.91	-6.56
Iraq	115.15	2.63	.46	-6.78
Israel	43.19	3.75	.64	-2.98
Kuwait	2.55	6.47	.84	-39,168.35

Appendix 4-E (Cont'd)

<u>Region/ Country</u>	<u>MILEX/AF Coefficient</u>	<u>T-Test</u>	<u>R-Squared</u>	<u>Intercept</u>
Middle East (Cont'd)				
Oman				
Saudi Arabia	5.82	23.00	.99	-55,248.52
Syria				
UAE	2.67	2.25	.63	31,707.96
<u>SOUTH ASIA</u>				
Afghanistan	262.77	2.36	.41	-44,459.07
India	253.48	11.57	.94	-1.07
Pakistan	106.32	1.88	.31	-31,303.91

APPENDIX 5

Multiple Regression Methodology/Results

In the first regression, time series data for 41 developing and 7 developed countries was analyzed. Regressions were run using MILEX, GNP, TEXP, POP, AF, MILEX/AF, and GNP p.c. as independent variables.

Out of the 41 developing countries, 17 showed r-squares greater than 0.8 (41%). Of the developed countries, 2 out of 7 (29%) showed r-squares greater than 0.8. A number of variables showed significant T-ratios; however, no one variable of the seven was significant in a majority of the countries. Additionally, many of the variables showed both positive and negative correlations, thus negating their usefulness for predictive purposes.

Three major problems existed in the regression. First, due to the large number of variables and the low number of observations, only four degrees of freedom were allowed. Secondly, many of the variables were highly correlated with each other and multicollinearity was thus significant. Finally, trend effects were not taken into account.

In the second regression, 21 developing countries were analyzed. These countries appeared to be the most significant and/or most predictable countries in the group. In this analysis MILEX, GNP, TEXP, GNP p.c., POP, AF,

MILEX/AF, and MILEX p.c. were the independent variables. Five different data manipulations were performed based upon the use of current versus constant dollars and arms imports as a three year moving average. The following combinations were tested: current dollars with no moving average for arms imports, constant dollars without a moving average, current dollars with a moving average, constant dollars with a moving average, and current dollars with arms imports as a moving average (three years) and MILEX, GNP, and TEXP p.c. lagged one year.

The results of this analysis showed that little difference existed between the results of regressions run using current dollars and those runs using constant dollars. Arms imports as a moving average substantially increased the number of countries with r-squares above 0.8 (from about 40 to 50 percent to 75 percent). Lagged GNP, GNP p.c., and MILEX/AF had the highest number of significant T-ratios (approximately 30 percent of the countries for each). On the basis of this regression, further regressions were run using current dollars and arms imports as a moving average.

The same problems existed in the second regression as in the first, i.e., few degrees of freedom, multicollinearity, and trend effects.

In the third regression, 21 countries were analyzed.

In this regression, MILEX-1 (lagged one year), GNP-1, TEXP p.c., and MILEX/AF-1 were selected as independent variables, while arms imports as a two year moving average was selected as the dependent variable. In this regression, a "time" variable was included to nullify time effects. Also, to reduce multicollinearity, two related variables (such as GNP-1 and TEXP p.c. or MILEX-1 and MILEX/AF-1) were not used in the same equation.

The results of this regression were the most promising of the four runs. Approximately 62 percent of the countries had r-squares above 0.8 while MILEX-1 and MILEX/AF-1 were significant variables in about 50 percent of the countries. GNP-1 showed a significant positive correlation in about 40 percent of the countries; however, it also showed a negative correlation in 12 percent of the countries. The time variable was significant in 20 percent of the countries; however, it also showed a negative correlation in 12 percent of the countries. The time variable was significant in 20 percent of the countries, thus it is likely that trend effects significantly skewed earlier regressions.

In this regression, problems with low degrees of freedom, multicollinearity, and trend were lessened or nullified. While the regression had only eight degrees of freedom, the previous regressions had only three or four.

Since variables which were highly correlated were not run together in this regression, multicollinearity effects were reduced. Finally, with the use of the "time" variable, trend effects were greatly decreased.

The fourth regression used the same methodology and variables as regression three, with the exception that TEXP p.c. was lagged one year. Those countries with the highest r-squares from regression three were used in this regression (16 countries). Approximately the same r-squares were found, yet TEXP p.c.-1 was significant in only about 25 percent of the countries. MILEX-1 and MILEX/AF-1 continued to be significant in about 50 percent of the countries.

Statistical problems in this regression were those noted in regression three.

APPENDIX 6

ARMS IMPORT DEMAND POOLED REGRESSION DATA:
 ARMS IMPORT (THREE YEAR MOVING
 AVERAGE) VERSUS GNP

<u>Country</u>	<u>F_C</u>	<u>R-Squared</u>	<u>(t)</u>	<u>GNP Coefficient</u>	<u>Intercept</u>
Nigeria Sudan	.4077	.483	4.10	.00077	12.00
Korea, North Korea, Rep. of	1.090	.377	3.21	.0064	111.94
Saudi Arabia UAE	.745	.920	12.27	.0142	-102.32

-
- NOTES: 1. An F_C value less than 3.34 is required for a 5% confidence level, given 10 degrees of freedom in the numerator and 8 degrees of freedom in the denominator.
2. A t-test greater than 1.725 is required for a 95% confidence level.

APPENDIX 7

MAJOR SUPPLIER MARKET SHARE IN SELECTED THIRD WORLD NATIONS: 1965-1978

	Total Deliveries (Million U.S. \$)	Market Share (%)				
		U.S.	U.S.S.R.	France	U.K.	West Germany Italy
AFRICA						
Algeria:						
65-74	277	1	96	3		
66-75	296		84			
67-76	445		71			27
68-77	710		66	1		30
						1
Angola:						
65-74						
66-75						
67-76	315		60			
68-77	640		53	2	2	
69-78	725		57		1	1
Ethiopia:						
65-74	129					
66-75	151	81		6	5	8
67-76	190	79		6	4	
68-77	537	71		5	3	3
69-78	1,600	20	56	2	1	1
		6	81	1		2
						2
Libya:						
65-74	749					
66-75	1,116	9	27	41	10	1
67-76	1,835	6	38	28	7	3
68-77	2,694	4	55	18	3	1
69-78	5,000		67	8	1	2
			68	5		3
						6
						7
						143

MAJOR SUPPLIER MARKET SHARE IN SELECTED
THIRD WORLD NATIONS: 1965-1978

Total Deliveries (Million U.S. \$)	Market Share (%)				
	U.S.	U.S.S.R.	France	U.K.	West Germany Italy

EAST ASIA

Burma:

65-74	45	64	7	7	11
66-75	39	59	5	8	
67-76	25	60	4	20	20
68-77	10				100
69-78	20				100

Cambodia:

65-74	606	94	1	1	
66-75	726	96	1		
67-76	720	97	1		
68-77	745	100			
69-78	625	92			

China, Taiwan:

65-74	1,607	100			
66-75	1,696	100			
67-76	1,785	100			
68-77	709	100			
69-78	850	97			

Indonesia:

65-74	331	27	16	3	
66-75	170	61	2	3	
67-76	240	52	2	2	
68-77	226	45			2
69-78	290	38	7	2	2

144.

MAJOR SUPPLIER MARKET SHARE IN SELECTED
THIRD WORLD NATIONS: 1965-1978

	Total Deliveries (Million U.S. \$)	Market Share (%)				
		U.S.	U.S.S.R.	France	U.K.	West Germany Italy
EAST ASIA (Cont'd)						
Korea, North:						
65-74	835	70				
66-75	809	67				
67-76	771	62				1
68-77	760	41				2
69-78	490	45				
Korea, Rep. of:						
65-74	2,374	100		1		
66-75	2,452	99				
67-76	2,625	100				
68-77	1,050	96		1		2
69-78	1,400	93		1		3
Malaysia						
65-74	242	18		10	30	1
66-75	253	31		11	25	
67-76	265	36		9	25	
68-77	225	47		13	18	2
69-78	290	59		7	14	2
Philippines:						
65-74	221	95				1
66-75	236	92			1	
67-76	265	91				
68-77	196	70			10	5
69-78	230	74			9	4

MAJOR SUPPLIER MARKET SHARE IN SELECTED
THIRD WORLD NATIONS: 1965-1978

	Total Deliveries (Million U.S. \$)	Market Share (%)				
		U.S.	U.S.S.R.	France	U.K.	West Germany Italy
EAST ASIA (Cont'd)						
Singapore:						
65-74	133	32		2	35	6
66-75	147	36		1	31	
67-76	170	44			26	6
68-77	162	38			31	6
69-78	170	41		6	12	3
Thailand:						
65-74	397	95			3	2
66-75	434	96			3	
67-76	485	92			3	1
68-77	309	81			3	3
69-78	330	79				2
LATIN AMERICA						
Argentina:						
65-74	293	42		25	6	16
66-75	320	40		23	5	
67-76	361	36		21	15	12
68-77	216	31		14	19	14
69-78	380	18		26	13	8

MAJOR SUPPLIER MARKET SHARE IN SELECTED
THIRD WORLD NATIONS: 1965-1978

LATIN AMERICA (Cont'd)	Total Deliveries (Million U.S. \$)	Market Share (%)				
		U.S.	U.S.S.R.	France	U.K.	West Germany Italy
Brazil:						
65-74	475	48		23	8	2
66-75	531	46		27	9	
67-76	690	43		22	15	4
68-77	572	30		23	31	5
69-78	650	25		12	46	3
						10
						12
Chile:						
65-74	213	35		6	42	1
66-75	246	33		5	43	
67-76	355	31		3	41	8
68-77	357	30		6	39	1
69-78	330	33		3	27	6
Colombia:						
65-74	148	40		37	5	4
66-75	182	31		30	4	1
67-76	175	31		31	3	23
68-77	99	19		40		40
69-78	60	33				66
Cuba:						
65-74	295		100			
66-75	312		100			
67-76	355		100			
68-77	480		100			
69-78	675		100			

MAJOR SUPPLIER MARKET SHARE IN SELECTED
THIRD WORLD NATIONS: 1965-1978

	Total Deliveries (Million U.S. \$)	Market Share (%)				
		U.S.	U.S.S.R.	France	U.K.	West Germany Italy
LATIN AMERICA (Cont'd)						
Ecuador:						
65-74	66	38		18	23	8
66-75	85	26		14	22	
67-76	131	16		11	15	15
68-77	287	6		21	24	28
69-78	390	10		28	18	28
						1
Peru:						
65-74	390	12	8	19	15	16
66-75	493	14	17	15	11	
67-76	655	16	25	17	8	14
68-77	898	9	61	7	6	7
69-78	1,000	9	65	7	1	6
						1
						4
Venezuela:						
65-74	291	26		44	12	1
66-75	326	28		40	14	
67-76	375	28		33	12	11
68-77	405	27		32	10	20
69-78	380	32		13	18	21
						7
						8

MAJOR SUPPLIER MARKET SHARE IN SELECTED
THIRD WORLD NATIONS: 1965-1978

	Total Deliveries (Million U.S. \$)	Market Share (%)				
		West				
		U.S.	U.S.S.R.	France	U.K.	Germany Italy
MIDDLE EAST						
Egypt:						
65-74	2,661		91	1		1
66-75	2,780		89	3		
67-76	2,801		84	4		4
68-77	1,748		69	10	5	8
69-78	1,200	5	36	22	9	14
						1
						1
Iran:						
65-74	2,798	61	21		7	3
66-75	3,877	70	15		6	
67-76	5,271	73	12		5	5
68-77	7,005	77	6	1	5	6
69-78	8,700	77	4	2	5	5
						4
Iraq:						
65-74	1,233	1	84	1	1	
66-75	1,721		78	2		
67-76	2,451		73	4		1
68-77	3,740		70	6	1	2
69-78	5,300		68	8		3
						1
Israel:						
65-74	3,380	94		4	1	
66-75	4,031	96		3		
67-76	4,941	96		2	1	
68-77	3,956	96		1	2	
69-78	4,800	96			1	

MAJOR SUPPLIER MARKET SHARE IN SELECTED
THIRD WORLD NATIONS: 1965-1978

	Total Deliveries (Million U.S. \$)	Market Share (%)				
		U.S.	U.S.S.R.	France	U.K.	West Germany Italy
MIDDLE EAST (Cont'd)						
Kuwait:						
65-74	66	9			88	
66-75	97	14		6	57	
67-76	181	17			39	11
68-77	455	36	7	33	20	4
69-78	750	44	7	20	25	3
Oman:						
65-74	36				56	
66-75	67	4			22	
67-76	71	7			30	
68-77	114	4			53	
69-78	380	1			87	1
Saudi Arabia:						
65-74	820	45		23	26	2
66-75	1,038	46		18	32	
67-76	1,440	47		16	31	1
68-77	2,068	47		11	25	
69-78	3,000	50		9	24	1 3
Syria:						
65-74	1,694		93			1
66-75	1,905		92			
67-76	2,261		89			1
68-77	3,600		86	4		3
69-78	3,300		82	5	1	3

150.

MAJOR SUPPLIER MARKET SHARE IN SELECTED
THIRD WORLD NATIONS: 1965-1978

	Total Deliveries (Million U.S. \$)	Market Share (%)				
		U.S.	U.S.S.R.	France	U.K.	West Germany Italy
SOUTH ASIA						
Afghanistan:						
65-74	325		100			
66-75	309		100			
67-76	311		93			
68-77	325		95			
69-78	350		94			
Bangladesh:						
65-74	53		57			
66-75	53		57			
67-76	61		57		8	
68-77	106	1	57		5	
69-78	70		29		14	
India:						
65-74	1,674	3	79	2	5	2
66-75	1,690	2	81	2	5	
67-76	1,680	2	81	2	4	
68-77	1,292	2	85	2	3	1
69-78	1,900	2	84	2	3	1

MAJOR SUPPLIER MARKET SHARE IN SELECTED
THIRD WORLD NATIONS: 1965-1978

	Total Deliveries (Million U.S. \$)	Market Share (%)				
		U.S.	U.S.S.R.	France	U.K.	West Germany Italy
<u>SOUTH ASIA (Cont'd)</u>						
Pakistan:						
65-74	852	11	3	27	1	4
66-75	842	10	3	26		1
67-76	831	10	3	32		
68-77	662	13	1	32	3	2
69-78	775	17	1	31	2	1

APPENDIX 8

Arms Export Control Act Restrictions
on U.S. Arms Transfers

1. Sales shall not be approved to arm military dictators who are denying the growth of fundamental rights or social progress to their people. The President may waive this sense-of-Congress limitation when he determines it would be important to the security of the United States and so reports to Congress (Section 1).
2. No sales shall be made, or credits or guaranties provided to any country whose laws, regulations, official policies, or governmental practices prevent any United States person from participating in the furnishing of defense articles and services on the basis of race, religion, national, origin, or sex (Section 5).
3. Unless the President determines that national security requires otherwise and so reports to the Congress, he shall terminate all sales, credits, or guaranties for one year to any government which aids or abets, by giving sanctuary from prosecution to any individual or group which has committed an act of international terrorism (Section 3(f)).
4. Sales of defense articles or services which would have significant adverse effect on the combat readiness of United States Armed forces will be kept to an absolute minimum, and the President must certify to the Congress that each such sale is important to the security of the United States (Section 21(h)).
5. No sale or credit guarantee shall be made to an economically less developed country that is diverting development assistance or P.L. 480 sales furnished by the United States to military expenditures, or diverting its own resources to unnecessary military expenditures to a degree which materially interferes with its development, until the President is assured that such diversion shall no longer take place (Section 35(a)).
6. FMS funds may be used for procurement outside the U.S. only if the President determines that such procurement will not result in adverse effects upon the U.S. economy or the industrial mobilization base which

outweigh other advantages to the U.S. (Section 42(c)).

7. No credits shall be extended or guaranteed for any sale of sophisticated weapons systems, such as missile systems and military jet aircraft, to any underdeveloped country (other than France, Turkey, Iran, Israel, the Republic of China, the Philippines, and Korea), unless the President determines that such financing is important to the national security of the United States and reports each such determination to the Congress (Section 4).
8. No credit or guarantee shall be provided in any case involving coproduction or licensed production outside the United States or any defense article of U.S. origin unless the Secretary of State shall, in advance of such transaction, furnish the Congress with full information regarding the proposed transaction to include a description of the article(s) to be produced, their estimated value, and the probable impact of the proposed transaction on employment and production within the United States (Section 42(b)).
9. No funds shall be used to provide foreign military credit sales to Argentina, Brazil, El Salvador, and Guatemala (Section 503B, Foreign Assistance Appropriations Act, 1978).
10. No credit or cash sales may be made to Chile, and no cash sales may be made to Argentina after September 30, 1978 (see pp. 19-23).
12. In Fiscal Year 1978, not more than \$1.85 million shall be used for foreign military credit sales to the Government of the Philippines. Cash and credit sales to Turkey shall be limited to \$175 million in Fiscal Year 1978 (see pp. 19-23).

SOURCE: U.S. House of Representatives Committee on International Relations, United States Arms Transfer and Security Assistance Program (Washington, D.C.: GPO, 1978) pp.56-57.

APPENDIX 9

Conventional Arms Transfer Policy Statement

By The President

The White House, May 19, 1977.

The virtually unrestrained spread of conventional weaponry threatens stability in every region of the world. Total arms sales in recent years have risen to over \$20 billion, and the United States accounts for more than one half of this amount. Each year, the weapons transferred are not only more numerous, but also more sophisticated and deadly. Because of the threat to world peace embodied in this spiraling arms traffic, and because of the special responsibilities we bear as the largest arms seller, I believe that the United States must take steps to restrain its arms transfers.

Therefore, shortly after my Inauguration, I directed a comprehensive review of U.S. conventional arms transfer policy, including all military, political, and economic factors. After reviewing the results of this study, and discussing those results with members of Congress and foreign leaders, I have concluded that the United States will henceforth view arms transfers as an exceptional foreign policy implement, to be used only in instances where

it can be clearly demonstrated that the transfer contributes to our national security interests. We will continue to utilize arms transfers to promote our security and the security of our close friends. But, in the future, the burden of persuasion will be on those who favor a particular arms sale, rather than those who oppose it.

To implement a policy of arms restraint, I am establishing the following set of controls, applicable to all transfers except those to countries with which we have major defense treaties (NATO, Japan, Australia, and New Zealand). We will remain faithful to our treaty obligations and will honor our historic responsibilities to assume the security of the state of Israel. These controls will be binding unless extraordinary circumstances necessitate a Presidential exception, or where I determine that countries friendly to the United States must depend on advanced weaponry to offset quantitative and other disadvantages in order to maintain regional balance.

1. The dollar volume (in constant FY 1976 dollars) of new commitments under the Foreign Military Sales and Military Assistance Programs for weapons and weapons-related items in FY 1978 will be reduced from the FY 1977 total. Transfers which can clearly be classified as services are not covered, nor are commercial sales, which the U.S.

Government monitors through the issuance of export licenses. Commercial sales are already significantly restrained by existing legislation and Executive Branch policy.

2. The United States will not be the first supplier to introduce into a region newly-developed, advanced weapons systems which would create a new or significantly higher combat capability. Also, any commitment for sale or coproduction of such weapons is prohibited until they are operationally deployed with U.S. forces, thus removing the incentive to promote foreign sales in an effort to lower unit costs for Defense Department procurement.

3. Development or significant modification of advanced weapons systems solely for export will not be permitted.

4. Coproduction agreements for significant weapons, equipment, and major components (beyond assembly of subcomponents and the fabrication of high-turnover spare parts) are prohibited. A limited class of items will be considered for coproduction arrangements, but with restrictions on third-country exports, since these arrangements are intended primarily for the coproducer's requirements.

5. In addition to existing requirements of the law, the United States, as a condition of sale for certain weapons, equipment, or major components, may stipulate that

we will not entertain any requests for retransfers. By establishing at the outset that the United States will not entertain such requests, we can avoid unnecessary bilateral friction caused by later denials.

6. An amendment to the International Traffic in Arms Regulations will be issued, requiring policy level authorization by the Department of State for actions by agents of the United States or private manufacturers which might promote the sale of arms abroad. In addition, embassies and military representatives abroad will not promote the sale of arms and the Secretary of Defense will continue his review of government procedures, particularly procurement regulations, which may provide incentives for foreign sales.

In formulating security assistance programs consistent with the controls, we will continue our efforts to promote and advance respect for human rights in recipient countries. Also, we will assess the economic impact of arms transfers to those less-developed countries receiving U.S. economic assistance.

I am initiating this policy of restraint in the full understanding that actual reductions in the worldwide traffic in arms will require multilateral cooperation.

Because we dominate the world market to such a degree, I believe that the United States can, and should, take the first step. However, in the immediate future, the United States will meet with other arms suppliers, including the Soviet Union, to begin discussions of possible measures for multilateral action. In addition, we will do whatever we can to encourage regional agreements among purchasers to limit arms imports.

APPENDIX 10

Statement By The President, February 1, 1978

The United States Government, the Executive Branch and the Congress are pledged to bring about a reduction in the trade in conventional arms. Last year, I promised to begin reducing U.S. arms sales as a necessary first step. I will continue that policy this year.

In the last Fiscal year, the previous Administration and my Administration made sales commitments totaling many billions of dollars. While high, however, the total was considerably less than it would have been in the absence of new restraints we introduced, particularly in sales commitments to the developing countries of the world. Between January 20 and the close of the fiscal year, I approved and sent to Congress arms sales totaling \$5.7 billion, which is less than half the total approved during the same period in 1976.

Today, I am announcing that arms transfer agreements covered by the ceiling which I have established will be reduced by \$740 million in Fiscal Year 1978. This means that for the fiscal year which began on October 1, 1977, and which will end on September 30, 1978, new commitments under the Foreign Military Sales and Military Assistant programs for weapons and weapons-related items to all countries except NATO,

Japan, Australia and New Zealand will not exceed \$8.6 billion. The comparable figure for Fiscal Year 1977 was \$9.3 billion. This is a reduction of 8 percent, figured on constant Fiscal Year 1976 dollars.

A larger cut in the ceiling would violate commitments already made, including our historic interest in the security of the Middle East, and would ignore the continuing realities of world politics and risk the confidence and security of those nations with whom the United States has vital and shared foreign policy and security interests. A smaller reduction would neglect our responsibility to set an example of restraint that others might follow.

I intend to make further reductions in the next fiscal year. The extent of next year's reduction will depend upon the world political situation and upon the degree of cooperation and understanding of other nations.

I want to emphasize that the restraint policy I announced on May 19, 1977, was not aimed exclusively at the volume of arms transfers. Equally important is restraint in the sophistication of arms being transferred and on the spreading capability to produce armaments. Therefore, in addition to the ceiling, I established five specific controls applicable to all transfers except those to our

NATO allies, Japan, Australia, and New Zealand. These control included: (1) a control on the first introduction of certain advanced systems into an area; (2) a prohibition on advanced systems for export only; (3) a prohibition on various types of coproduction arrangements; (4) tighter controls on retransfer; and (5) special controls on sales promotions.

These guidelines are at the heart of my decisions to approve or disapprove an arms transfer.

As I stated in my October 4 speech to the United Nations, genuine progress in this area will require multilateral efforts. But, we are committed to taking the first steps alone to stop the spiral of increasing arms transfers. I call upon suppliers and recipients alike to join us in a determined effort to make the world a safer place in which to live.

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978**
(Thousand U.S. Dollars)

AFRICA

U.S. Arms Deliveries

	<u>Total Deliveries (All Sources)</u>	<u>Commercial</u>	<u>FMS Deliveries</u>	<u>MAP Deliveries</u>	<u>Total Amount Share %</u>	<u>U.S. Military Assistance (grants/credits)</u>
<u>Ethiopia</u>						
1972	10000	103	0	7517	7517	7517
1973	10000	107	8	5558	5673	5558
1974	10000	46	1	5274	5321	16274
1975	30000	50	9144	4924	14118	29924
1976	50000	34	10797	7304	18135	7304
1977	430000	1074	51912	5326	58312	5326
1978	1100000			0	0	
<u>Kenya</u>						
1972	10000	1302		0	1302	1
1973	0	86			86	*
1974	30000	1986			1986	7
1975	10000	860			860	9
1976	0	50			50	*
1977	10000	227	129		356	4
1978	50000	346	41408		41754	83
<u>Morocco</u>						
1972	0	35	1172	161	1368	*
1973	10000	251	1411	43	1705	17
1974	20000	38	2595		2633	13
1975	50000	1047	1941		2988	6
1976	220000	4103	12235		16338	7
1977	210000	21616	31645		53261	25
1978	470000	11996	81629		93625	20
						15161
						9843
						3000
						14000
						30000
						30000
						43000

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978
(Thousand U.S. Dollars)**

AFRICA

U.S. Arms Deliveries

	<u>Total Deliveries (All Sources)</u>	<u>Commercial</u>	<u>FMS Deliveries</u>	<u>MAP Deliveries</u>	<u>Total Amount Share %</u>	<u>U.S. Military Assistance (grants/credits)</u>
--	---	-------------------	---------------------------	---------------------------	---------------------------------	--

Nigeria

1972	20000	303			303	2
1973	20000	693			693	4
1974	20000	2155	5		2160	11
1975	90000	427	2		429	1
1976	50000	23532	1		23533	47
1977	10000	1614			1614	16
1978	40000	4724			4724	12

South Africa

1972	130000	437	3		440	0
1973	80000	3			0	0
1974	100000	41			41	0
1975	130000	807			807	1
1976	180000	4825			4825	3
1977	130000	5702			5702	4
1978	50000	4670			4670	9

Sudan

1972	20000					0
1973	10000					0
1974	30000					0
1975	0					*
1976	5000	14			14	0
1977	10000	89			89	1
1978	60000		28093		28093	47

U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978
(Thousand U.S. Dollars)

AFRICA

U.S. Arms Deliveries

Zaire	Total Deliveries (All Sources)	U.S. Arms Deliveries		MAP Deliveries	Total Amount Share %	U.S. Military Assistance (grants/credits)
		Commercial	FMS Deliveries			
1972	40000	2141	6747	47	8935	2047
1973	20000	13	586		599	6228
1974	50000	205	922		1127	3500
1975	30000		462		462	3500
1976	120000	173	2104		2277	29000
1977	30000	1733	5864		7597	28000
1978	30000	937	3586		4523	17500

U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978
(Thousand U.S. Dollars)

EAST ASIA

U.S. Arms Deliveries

	Total Deliveries (All Sources)	Commercial	FMS Deliveries	MAP Deliveries	Total Amount Share %	U.S. Military Assistance (grants/credits)
Burma						
1972	10000	146	203	198	547	198
1973	10000	108	65	7	180	7
1974	5000	29	129		158	3
1975	0	47	78		125	*
1976	0	157	25		182	*
1977	10000	26	53		79	0
1978	5000	632	727		1359	27
Kampuchea (Cambodia)						
1972	110000	2		94986	94988	94986
1973	150000	2		138278	138280	138278
1974	290000			268777	268777	268777
1975	280000			265212	265212	265212
1976	5000				0	0
1977	10000				0	0
1978	40000				0	0
China (Taiwan)						
1972	40000	5697	19785	12366	37848	57366
1973	70000	6001	52427	6058	64486	49758
1974	150000	8086	78611	46543	133240	106543
1975	160000	44982	101676	4292	150950	84292
1976	160000	42531	106385	4194	153110	97194
1977	180000	46140	117268	3593	167021	38593
1978	190000	73637	116816	496	190949	23996

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978
(Thousand U.S. Dollars)**

EAST ASIA

U.S. Arms Deliveries

	Total Deliveries (All Sources)	Commercial	FMS Deliveries	MAP Deliveries	Total Amount Share %	U.S. Military Assistance (grants/credits)
Indonesia						
1972	5000	638		2859	3497	2859
1973	20000	68	145	7625	7838	7625
1974	30000	859	145	9049	10053	12549
1975	30000	304	7807	7445	15556	12445
1976	80000	6707	10722	8194	25623	31294
1977	60000	5295	24761	5125	35181	28225
1978	90000	3011	4633	7448	15092	47448
Korea Republic of						
1972	340000	685	298	236139	237122	253139
1973	170000	187	541	130843	131571	155043
1974	80000	1090	4820	69106	75016	125789
1975	190000	3550	40884	149731	194165	208731
1976	340000	19909	119386	154518	293803	414593
1977	290000	77169	142717		219886	152425
1978	550000	74714	362419		437133	275000
Laos						
1972	130000	685		119392	120077	119392
1973	150000	187		116088	116275	116088
1974	120000	1090		89705	90795	89705
1975	NA	3550		1540	5090	1540
1976	NA	19909			19909	NA
1977	40000	77169			77169	**
1978	NA	74714			74714	NA

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978**
(Thousand U.S. Dollars)

EAST ASIA

U.S. Arms Deliveries

	<u>Total Deliveries (All Sources)</u>	<u>Commercial</u>	<u>FMS Deliveries</u>	<u>MAP Deliveries</u>	<u>Total Amount Share %</u>	<u>U.S. Military Assistance (grants/credits)</u>
<u>Malaysia</u>						
1972	30000	3429	481		3910 13	8550
1973	40000	2461	695		3176 8	10000
1974	40000	10583	1787		12370 31	18750
1975	40000	3359	26714		30073 43	4037
1976	40000	6334	11232		17566 44	16931
1977	60000	41500	1669		43169 72	36000
1978	80000	63150	2004		65194 82	16500
<u>Philippines</u>						
1972	10000	290	3	9813	10106 100	10106
1973	10000	187	0	10031	10218 100	10218
1974	30000	1966	1341	11120	14427 48	14427
1975	40000	2942	4814	8736	16492 41	16492
1976	60000	11768	15212	11253	38233 64	38233
1977	50000	14082	26948	2746	43776 88	43776
1978	50000	7184	29530	10388	47102 94	47102
<u>Vietnam</u>						
1972	1500000	30		1402026	1402056 93	1402026
1973	2700000	3		2214457	2214460 82	2214457
1974	800000		1152	622161	623313 78	622161
1975	775000			579443	579443 75	579443
1976						
1977						
1978						

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978
(Thousand U.S. Dollars)**

EAST ASIA

U.S. Arms Deliveries

	<u>Total Deliveries (All Sources)</u>	<u>Commercial</u>	<u>FMS Deliveries</u>	<u>MAP Deliveries</u>	<u>Total</u>		<u>U.S. Military Assistance (grants/credits)</u>
					<u>Amount</u>	<u>Share %</u>	
<u>Singapore</u>							
1972	50000	4661	2245		6806	14	0
1973	50000	4033	524		4557	9	0
1974	20000	723	1118		1841	9	0
1975	60000	5041	6857		11898	20	0
1976	20000	15297	29588		18255	91	0
1977	40000	6652	14470		21122	53	0
1978	30000	4494	8009		12503	42	0
<u>Thailand</u>							
1972	70000	3308	12226	40780	56314	80	40780
1973	100000	1319	1167	69644	72130	72	69644
1974	40000	4315	4388	84211	92904	**	84211
1975	40000	2294	5931	29171	37396	93	36870
1976	70000	10040	17591	15402	43033	62	52102
1977	50000	8005	14279	8236	30520	61	38236
1978	120000	8677	85336	9257	103270	86	38757

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978**
(Thousand U.S. Dollars)

LATIN AMERICA

U.S. Arms Deliveries

	<u>Total Deliveries (All Sources)</u>	<u>Commercial</u>	<u>FMS Deliveries</u>	<u>MAP Deliveries</u>	<u>Total Amount Share %</u>	<u>U.S. Military Assistance (grants/credits)</u>
<u>Argentina</u>						
1972	60000	13962	9349	49	23360	39
1973	50000	11569	7507	0	19076	38
1974	40000	1251	11500	1	12752	32
1975	30000	2302	4152	1	6455	22
1976	50000	3599	7095		10694	21
1977	40000	6314	5912		12226	31
1978	210000	13258	6762		20020	10
<u>Bolivia</u>						
1972	0	99	1	810	910	* 810
1973	10000	88	4	1717	1809	18
1974	5000	158	11	1679	1848	37
1975	10000	185	262	1300	1747	17
1976	5000	230	237	917	1384	28
1977	5000	708	5	424	1137	23
1978	20000	794	81	3454	4329	22
<u>Brazil</u>						
1972	60000	609	11405	433	12447	21
1973	120000	724	19647	1	20472	17
1974	60000	4002	15127	0	19129	32
1975	100000	4337	30385	1	34723	35
1976	180000	43988	34514		78502	44
1977	140000	6055	6896		12951	9
1978	160000	4333	6692		11485	7
						32336
						35434
						64429
						94723
						12195
						12951
						11485

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978
(Thousand U.S. Dollars)**

LATIN AMERICA

U.S. Arms Deliveries

	<u>Total Deliveries (All Sources)</u>	<u>Commercial</u>	<u>FMS Deliveries</u>	<u>MAP Deliveries</u>	<u>Total Amount</u>	<u>Share %</u>	<u>U.S. Military Assistance (grants/credits)</u>
<u>Chile</u>							
1972	10000	547	1261	1610	3418	34	13418
1973	70000	548	1448	17	2013	3	14413
1974	70000	1819	2957	0	4776	7	19776
1975	20000	568	8668	55	9281	46	9281
1976	130000	1427	31984		33411	26	33411
1977	60000	1357	53165		54522	91	54522
1978	50000		9218		9218	18	9218
<u>Columbia</u>							
1972	30000	332	252	375	959	3	7625
1973	40000	580	725	84	1389	4	10084
1974	10000	764	3370	57	4091	41	57
1975	40000	1045	551	10	1606	4	10
1976	0	1163	523		1686	*	19600
1977	10000	7071	326		7397	74	
1978	10000	2583	1659		4242	42	51000
<u>Ecuador</u>							
1972	10000	92	456		548	6	
1973	20000	26	0		26	0	
1974	5000	48	0		48	1	
1975	60000	1132	556		1688	3	
1976	90000	2469	3256		5727	6	9998
1977	160000	643	8063		8706	5	15000
1978	80000	16558	3009		19567	25	10000

U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978
(Thousand U.S. Dollars)

LATIN AMERICA

U.S. Arms Deliveries

	Total Deliveries (All Sources)	Commercial	FMS Deliveries	MAP Deliveries	Total Amount Share %	U.S. Military Assistance (grants/credits)
<u>Guatemala</u>						
1972	10000	513	5695	119	6127	119
1973	5000	142	1508	580	2230	3180
1974	0	209	1138	1134	2481	134
1975	10000	471	3009	125	3605	2425
1976	20000	345	2140	136	2621	1527
1977	5000	1020	1476	45	2541	45
1978	10000	550	1047	28	1625	28
<u>Honduras</u>						
1972	0	115	16	105	236	105
1973	0	48	106	135	189	135
1974	0	32	611	86	729	86
1975	0	5	384	54	443	3054
1976	40000	109	4455	107	4671	2607
1977	5000	216	269	205	690	2705
1978	5000	157	258	225	640	2725
<u>Mexico</u>						
1972	0	606	383		889	*
1973	5000	241	195		436	9
1974	10000	1167	831		1898	19
1975	20000	751	192		943	5
1976	20000	1017	631		1648	8
1977	10000	2386	3297		5683	57
1978	5000	2610	447		3057	61

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978
(Thousand U.S. Dollars)**

LATIN AMERICA

U.S. Arms Deliveries

	Total Deliveries (All Sources)	FMS		MAP Deliveries	Total		U.S. Military Assistance \$ (grants/credits)
		Commercial	Deliveries		Amount	Share %	
<u>Nicaragua</u>							
1972	0	157	63	98	318	*	98
1973	0	212	6	274	492	*	274
1974	0	187	72	139	398	*	139
1975	0	381	43	92	516	*	3092
1976	0	824	601	109	1534	*	2609
1977	10000	1606	330	26	1962	20	2526
1978	10000	597	579	256	1432	14	256
<u>Panama</u>							
1972	0	320	0	41	361	*	41
1973	0	1664	0	671	2335	**	671
1974	0	78	1773	397	782248		**
1975	5000	272	1391	78	1741	35	78
1976	0	543	1247	97	1887	**	97
1977	5000	2571	207	81	2859	57	2581
1978	0	976	118	163	1257	**	163
<u>Peru</u>							
1972	70000	8989	508		9497	14	
1973	80000	234	3782		4016	1	
1974	80000	357	4449		4806	6	15000
1975	120000	146	7352		7498	6	20500
1976	230000	2751	27678		30322	13	20000
1977	420000	5289	21748		27837	7	10000
1978	150000	4369	12276		16645	11	8000

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978**
(Thousand U.S. Dollars)

LATIN AMERICA

U.S. Arms Deliveries

	<u>Total Deliveries (All Sources)</u>	<u>Commercial</u>	<u>FMS Deliveries</u>	<u>MAP Deliveries</u>	<u>Total Amount Share %</u>	<u>U.S. Military Assistance (grants/credits)</u>
<u>Uruguay</u>						
1972	0	106	736	820	1662	2820
1973	5000	7	572	357	936	357
1974	0	210	1309	344	1863	2344
1975	5000	11	902	243	1156	7743
1976	5000	473	963	455	1891	2955
1977	5000	395	5245	193	5833	193
1978	5000	67	822	227	1116	227
<u>Venezuela</u>						
1972	60000	4722	3191		7913	7500
1973	90000	3120	7474		10594	7573
1974	100000	4492	7967		12459	7500
1975	90000	7595	31402		38997	
1976	60000	4026	5296		9322	10000
1977	100000	7949	33511		41460	
1978	30000	5890	2795		8685	

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978**
(Thousand U.S. Dollars)

MIDDLE EAST

U.S. Arms Deliveries

	Total Deliveries (All Sources)	Commercial	FMS Deliveries	MAP Deliveries	Total Amount Share	% (grants/credits)	U.S. Military Assistance (grants/credits)
--	--------------------------------------	------------	-------------------	-------------------	-----------------------	-----------------------	---

Egypt
1972
1973
1974
1975
1976
1977
1978

550000					0	0	
850000					0	0	
230000					0	0	
350000	32				32	0	
150000	619		48		619	0	
220000	1266		7271		1266	1	
230000	6628		46983		6628	1	

Iran
1972
1973
1974
1975
1976
1977
1978

525000	42415	180141	5170	227726	43	5170
525000	19466	201303	1835	222604	42	1835
1000000	35322	589559	189	625070	63	189
1200000	49410	830261	2	879673	73	2
2100000	107943	1484250		1592193	76	
2400000	138432	1842357		1980789	83	
2100000	132651	1042120		1174771	56	

Israel
1972
1973
1974
1975
1976
1977
1978

270000	85862	175663		261525	97	300000
230000	21558	170823		192371	84	300000
975000	50118	861086		911204	94	2482664
750000	46746	660388		707134	94	30000
1000000	190021	767882		957903	96	1700000
1100000	221629	820196		1041825	95	100000
950000	122992	782744		905736	95	100000

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978**
(Thousand U.S. Dollars)

MIDDLE EAST

U.S. Arms Deliveries

	Total Deliveries (All Sources)	Commercial	FMS Deliveries	MAP Deliveries	Total Amount	Share %	U.S. Military Assistance (grants/credits)
Jordan							
1972	30000	57	10011	19045	29113	97	29045
1973	40000	17	13142	119335	32494	81	19335
1974	70000	92	12801	24363	37256	53	24363
1975	70000	184	11419	10020	21623	31	40020
1976	140000	148	68769	60678	129595	93	143178
1977	120000	3708	93410	5485	102603	86	80485
1978	170000	9337	88462	61521	159320	94	132521
Kuwait							
1972	5000				0	0	
1973	0	5			5	*	
1974	0	106	10		116	0	*
1975	50000	241	4013		4254	9	
1976	90000	5714	9085		14799	16	
1977	310000	198	141777		141976	46	
1978	300000	2132	163974		166106	55	
Lebanon							
1972	20000	3	38	194	235	1	9362
1973	20000	3044	1747	3273	8064	40	3273
1974	10000	575	827	216	1618	16	216
1975	10000	502	875	185	1562	16	185
1976	10000	801	4545	5	5351	54	5
1977	0	2	376		378	*	25000
1978	NA	2095	7382		9477		

**U.S. Arms Deliveries and Military Assistance in Selected Third World Nations:
1972-1978**
(Thousand U.S. Dollars)

MIDDLE EAST

U.S. Arms Deliveries

	<u>Total Deliveries (All Sources)</u>	<u>Commercial</u>	<u>FMS Deliveries</u>	<u>MAP Deliveries</u>	<u>Total Amount Share %</u>	<u>U.S. Military Assistance (grants/credits)</u>
Oman						
1972	5000	174			174	3
1973	10000	65			65	1
1974	10000	40			40	0
1975	40000	531	1345		1876	5
1976	10000	821	73		894	9
1977	50000	1146			1146	2
1978	270000	1405			1405	1
Saudi Arabia						
1972	110000	3649	9544		13193	12
1973	80000	5650	44272		49922	62
1974	340000	18031	82851		100882	30
1975	250000	20151	61996		82147	33
1976	470000	92670	109967		202637	43
1977	925000	44050	377946		421996	46
1978	1000000	166278	364785		531063	53
Yemen (Sana)						
1972	10000					0
1973	5000					0
1974	10000					0
1975	20000		1803		1803	9
1976	20000		311		311	2
1977	30000	1	21640		21641	72
1978	90000	2	26843		26845	30

SOUTH ASIA

U.S. Arms Deliveries

	<u>Total Deliveries (All Sources)</u>	<u>Commercial</u>	<u>FMS Deliveries</u>	<u>MAP Deliveries</u>	<u>Total Amount Share %</u>	<u>U.S. Military Assistance (grants/credits)</u>
<u>India</u>						
1972	210000	3591	125	139	3855	2
1973	190000	22	40	0	62	0
1974	190000	659	76	186	921	1
1975	170000	219	2197	177	2593	2
1976	490000	6169	1991	395	8555	2
1977	725000	9132	1317	43	10492	1
1978	280000	9456	1077	219	10752	4
<u>Pakistan</u>						
1972	110000	1434	748		2182	2
1973	130000	1162	3577		4739	4
1974	100000	1622	9327		10949	11
1975	100000	1644	9710		11354	11
1976	190000	821	10983		11804	6
1977	220000	4877	35058		39935	18
1978	170000	8521	38694		47215	28

